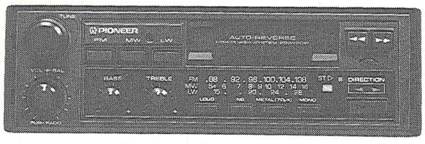
PIONEER

Service Manual



The photo shows the model KPH-4830/EW

ORDER NO.
CRT-474-0

CASSETTE CAR STEREO WITH TUNER
KPH-4800 EW,ES

CASSETTE CAR STEREO WITH TUNER
KPH-4830 EW

CASSETTE CAR STEREO WITH TUNER
KPH-4800SDK WG

- **Cassette Mechanism Unit**

See the Service Manual CX-152/A (CRT-467-0) when servicing the cassette mechanism unit.

NOTE:
Exploded View (Page 16)

CX-152/A				KPH-4800SDK/WG	
Mark	No.	Part No.	Description	Part No.	Description
★★	22.	CXM-114	Motor	CXM-115	Motor

SPECIFICATIONS

General

Power source	14.4V DC (10.8–15.6V allowable)
Grounding system	Negative type
Max. current consumption	5A
Dimensions (chassis)	180(W) x 50(H) x 150(D)mm
(front face)	188(W) x 58(H) x 10(D)mm
Weight	1.7kg (KPH-4800/EW,ES,KPH-4830/EW) 1.8kg (KPH-4800SDK/WG)

Amplifier

Maximum power output	20W+20W
Continuous power output	13W + 13W (1% dist. at 1kHz)
Load impedance	4Ω (14–8Ω allowable)
Tone controls (bass)	±10dB (100Hz)
(treble)	±10dB (10kHz)
Loudness contour	+12dB (100Hz), + 7dB (10kHz) (volume: –30dB)

Tape player

Tape	Compact cassette tape (C-30–C-90)
Tape speed	4.76cm/sec. (+0.14cm/sec., –0.05cm/sec.)
Fast forward/rewind time	Approx. 100 sec. for C-60
Wow & flutter	0.15% (WRMS)
Frequency response	Metal: 50–17,000Hz (±3dB) Normal: 50–14,000Hz (±3dB)
Stereo separation	45dB
Signal-to-noise ratio	52dB (IEC-A network)

FM tuner

Frequency range	87.5–108MHz (KPH-4800/EW, ES, KPH-4830/EW) 87.5–107.5 (KPH-4800SDK/WG)
Usable sensitivity	12dBf (1.1μV/75Ω, mono)
50dB quieting sensitivity	17dBf (1.9μV/75Ω, mono)
Signal-to-noise ratio	70dB (IEC-A network)
Distortion	0.3% (at 65dBf, 1kHz, stereo)
Frequency response	50–12,000Hz (±3dB)
Stereo separation	40dB (at 65dBf, 1kHz)

MW (AM) tuner

Frequency range	530–1,600kHz
Usable sensitivity	18μV (25dB) (S/N: 20dB)
Selectivity	30dB (±9kHz)

LW tuner (KPH-4830/EW)

Frequency range	150–280kHz
Usable sensitivity	180μV (45dB) (S/N: 20dB)
Selectivity	30dB (±9kHz)

Note:
Specifications and the design are subject to possible modification without notice due to improvements.

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Note: (KPH-4800SDK/WG)
When requested by a customer to confirm the receiving frequencies of the tuner, please determine whether FTZ standards are satisfied: If they are not, please adjust the unit to these standards, referring to the section of this service manual entitled ADJUSTMENT.

1. CONNECTIONS

Note:

- To avoid shorts in the electrical system, be sure to disconnect the battery ⊖ cable before beginning installation.
- When replacing fuses, be sure to use only fuses of the same capacity.
- Be sure to properly connect the color coded leads. Failure to do so can cause malfunctions.
- Since a unique BPTL circuit is employed, never wire so the speaker leads are directly grounded or the left and right speaker ⊖ leads are common.
- Speakers connected to this unit must be high-power type possessing maximum output of at least 20W and impedance of 4 to 8 ohms. Connecting speakers with output and/or impedance values other than those noted here can damage the speakers.

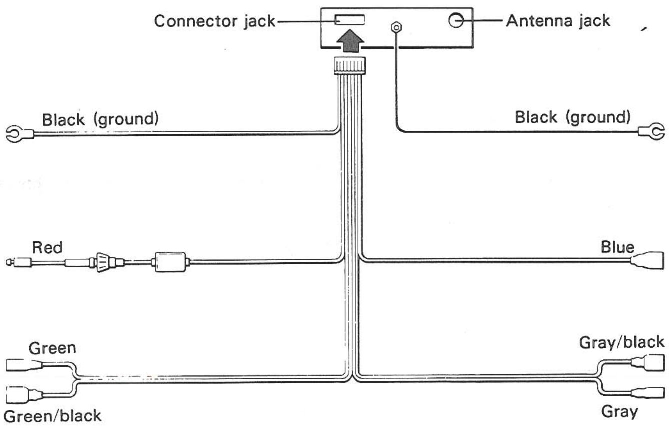


Fig. 1

Black (ground)	To vehicle (metal) body.
Red	To electric terminal controlled by ignition switch (12V DC) ON/OFF.
Green	To left speaker ⊕ terminal.
Green/black	To left speaker ⊖ terminal.
Blue	To auto-antenna power terminal (Max. 300mA 12V DC).
Gray/black	To right speaker ⊖ terminal.
Gray	To right speaker ⊕ terminal.

2. OPERATION

● Using the Radio

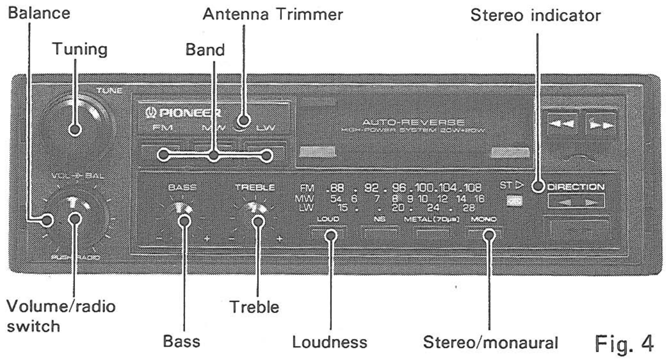

Balance
Tuning
Antenna Trimmer
Band
Stereo indicator
TUNE
PIONEER
FM MW LW
AUTO-REVERSE
HIGH-POWER SYSTEM 20W+20W
VOL BAL
BASS
TREBLE
DIRECTION
LOUD
NS
METAL(70μs)
MONO
PUSH RADIO
Volume/radio switch
Treble
Bass
Loudness
Stereo/monaural

Fig. 4

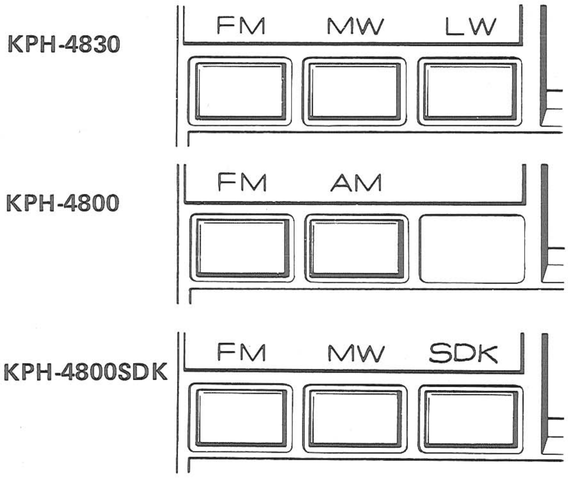

KPH-4830
FM MW LW
KPH-4800
FM AM
KPH-4800SDK
FM MW SDK

Fig. 5

● Before attempting operation.....

- ● Reduce the volume by turning the volume control knob to the left.

1. Press the radio switch to turn on power.
2. Press the band switch to select band.
3. Turn the tuning knob to select a frequency.
4. Adjust the volume, bass, treble and balance. Press the loudness switch if required.

● Stereo/Monaural Switch

This switch is used to change from stereo to monaural for FM broadcasts, and is usually left in the stereo position. When a stereo broadcast is received, the stereo indicator will illuminate. With the "Automatic Reception Control" (ARC) function, stereo broadcasts can always be enjoyed in their optimal reception mode. If excessive noise is present, pressing this switch allows monaural reception of the broadcast.

● Loudness Switch

When playing back a tape or listening to the radio at low volume, the low and high tones are emphasized and more clearly heard by pressing this switch.

● Antenna Trimmer Adjustment

Tune in a frequency in the vicinity of 1,400kHz in the MW (AM) band and adjust the antenna trimmer with a Phillips head screwdriver until optimum reception is attained.

● Using the Tape Deck

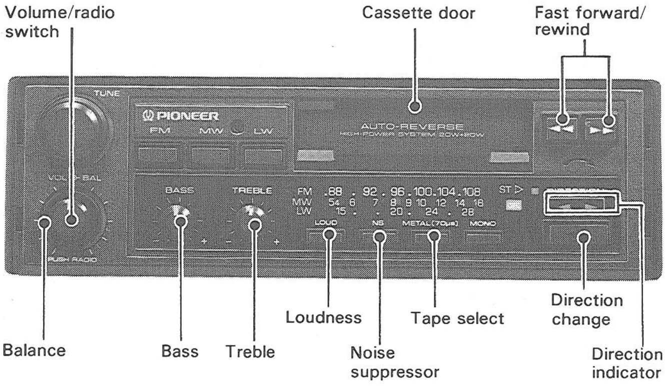

Volume/radio switch
Cassette door
Fast forward/ rewind
TUNE
PIONEER
FM MW LW
AUTO-REVERSE
HIGH-POWER SYSTEM 20W+20W
VOL BAL
BASS
TREBLE
LOUD
NS
METAL(70μs)
MONO
PUSH RADIO
Loudness
Tape select
Direction change
Balance
Bass
Treble
Noise suppressor
Direction indicator

Fig. 6

● Before attempting operation.....

- ● Reduce the volume by turning the volume control knob to the left.

1. Insert a tape into the deck to turn the power on and automatically begin playback. Even if the radio is on, the unit will automatically switch to and begin tape playback.
2. Adjust the volume, bass, treble and balance. Press the loudness switch if required.
3. When tape playback reaches the end of the tape, playback will automatically switch from the side being played to the opposite side (ie. Side A to Side B or vice versa) (Auto-reverse). To eject the tape during playback, simultaneously press the fast forward and rewind buttons.

Note:

- ● Do not try to eject the cassette immediately after insertion, as it will cause malfunction. Wait a few seconds.
- ● If the ignition of the vehicle is turned OFF 2 to 3 seconds after the direction change button is pressed, the tape can not be ejected even if the ejection button is pressed. When this happens, turn the ignition key to the ON or ACC position to remove the tape.

● Fast Forward/Rewind

Since the transport can be in either direction, both the left and right high-speed tape transport buttons can be regarded as fast forward/rewind buttons.

For fast forward, press the high-speed tape transport button that corresponds to the direction that is shown by the direction indicator. When the end of the tape is reached, playback will automatically begin from the opposite side of the tape (Auto-reverse).

For rewind, press the button that is opposite that of the direction shown by the direction indicator. When the end of the tape is reached, playback will automatically begin from the beginning of the same side of the tape (Auto-replay).

Fast forward and rewind can be terminated by pressing the respective opposite high-speed tape transport button.

● Direction Change Button

This button is used to switch from one side of the tape to the other (from Side A to Side B or vice versa).

● Tape Select Switch

This switch is used to switch to the proper mode for the tape being used and should be depressed when using chrome or metal tapes.

● Noise Suppressor Switch

Press to reduce tape hiss.

3. PARTS LOCATION

NOTE:

- *For your parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.*
  ★ ★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*

The photoshows the model KPH-4800SDK/WG.

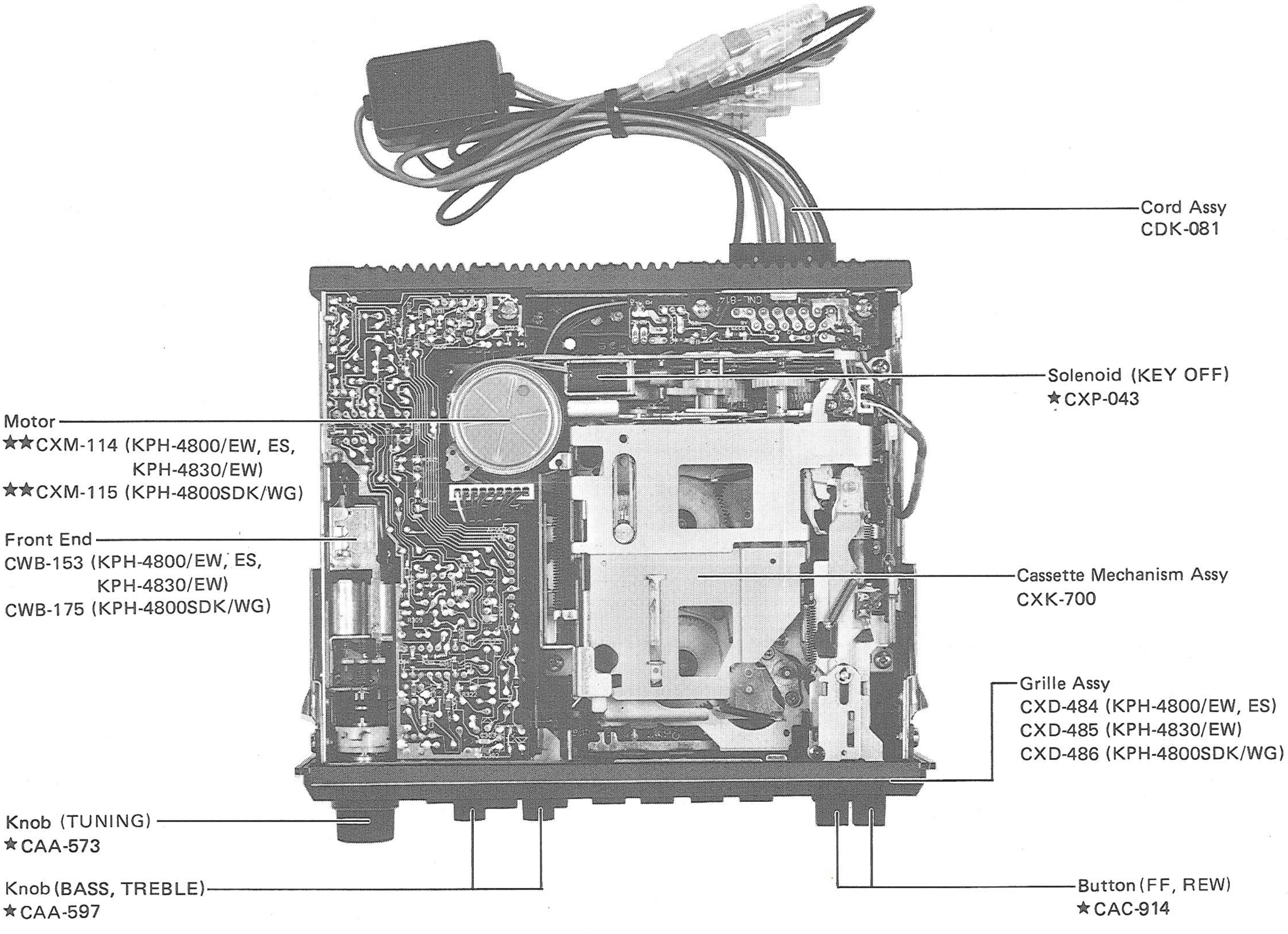

Cord Assy
CDK-081
Solenoid (KEY OFF)
★CXP-043
Motor
★★CXM-114 (KPH-4800/EW, ES, KPH-4830/EW)
★★CXM-115 (KPH-4800SDK/WG)
Front End
CWB-153 (KPH-4800/EW, ES, KPH-4830/EW)
CWB-175 (KPH-4800SDK/WG)
Cassette Mechanism Assy
CXK-700
Grille Assy
CXD-484 (KPH-4800/EW, ES)
CXD-485 (KPH-4830/EW)
CXD-486 (KPH-4800SDK/WG)
Knob (TUNING)
★CAA-573
Knob (BASS, TREBLE)
★CAA-597
Button (FF, REW)
★CAC-914

Fig. 7

4. DISASSEMBLY

- **Removing the Case**

1. Remove the five screws (A), and remove the case.

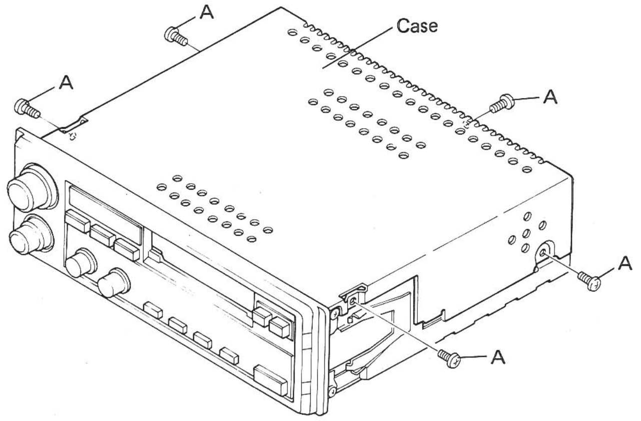


Fig. 8

- **Removing the Grille Assy**

1. Remove the four screws (B) and the knobs, then remove the grille Assy.

- **Removing the SDK Unit (KPH-4800SDK/WG)**

1. Remove the screw (C) and unsolder, then remove the SDK Unit.

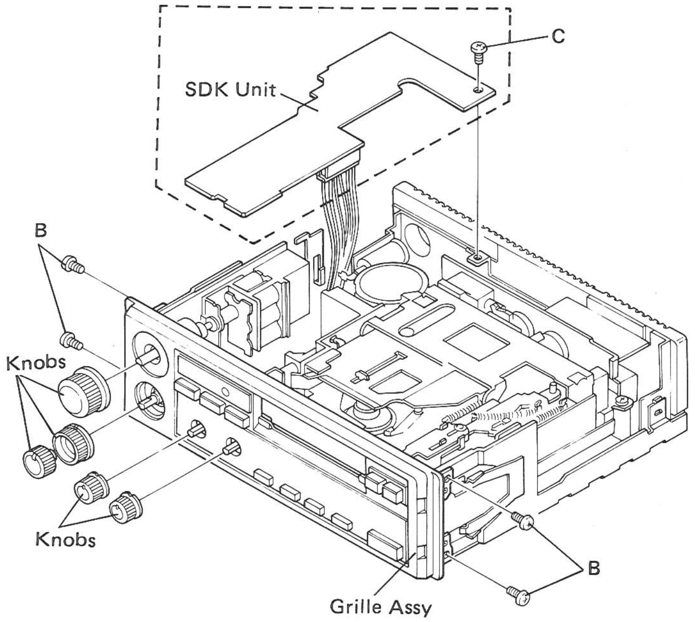

C
SDK Unit
B
Knobs
Knobs
B
Grille Assy

Fig. 9

- **Removing the Cassette Mechanism Assy**

1. Remove the four screws (D), and remove the cassette Mechanism Assy.

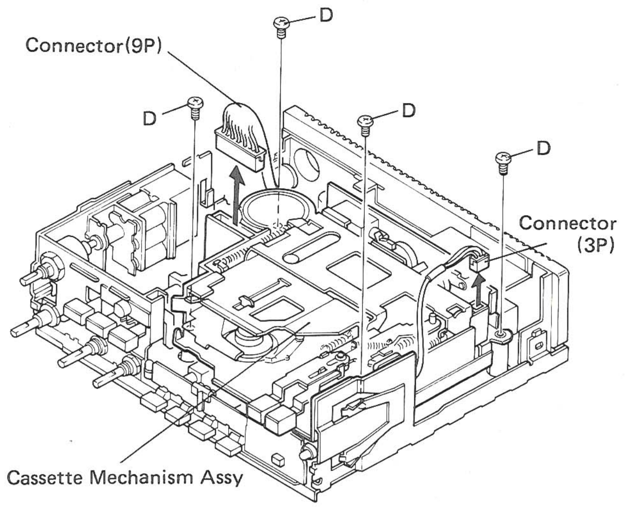

D
Connector(9P)
D
D
D
Connector
(3P)
Cassette Mechanism Assy

Fig. 10

- **Removing the Chassis Unit**

1. Remove the screw (E), then remove the chassis unit.

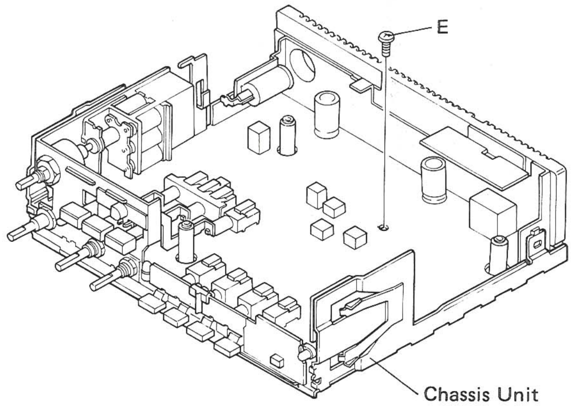

E
Chassis Unit

Fig. 11

5. CIRCUIT DESCRIPTION

5.1 POWER SUPPLY LINE

- **KPH-4800/EW,ES, KPH-4830/EW**

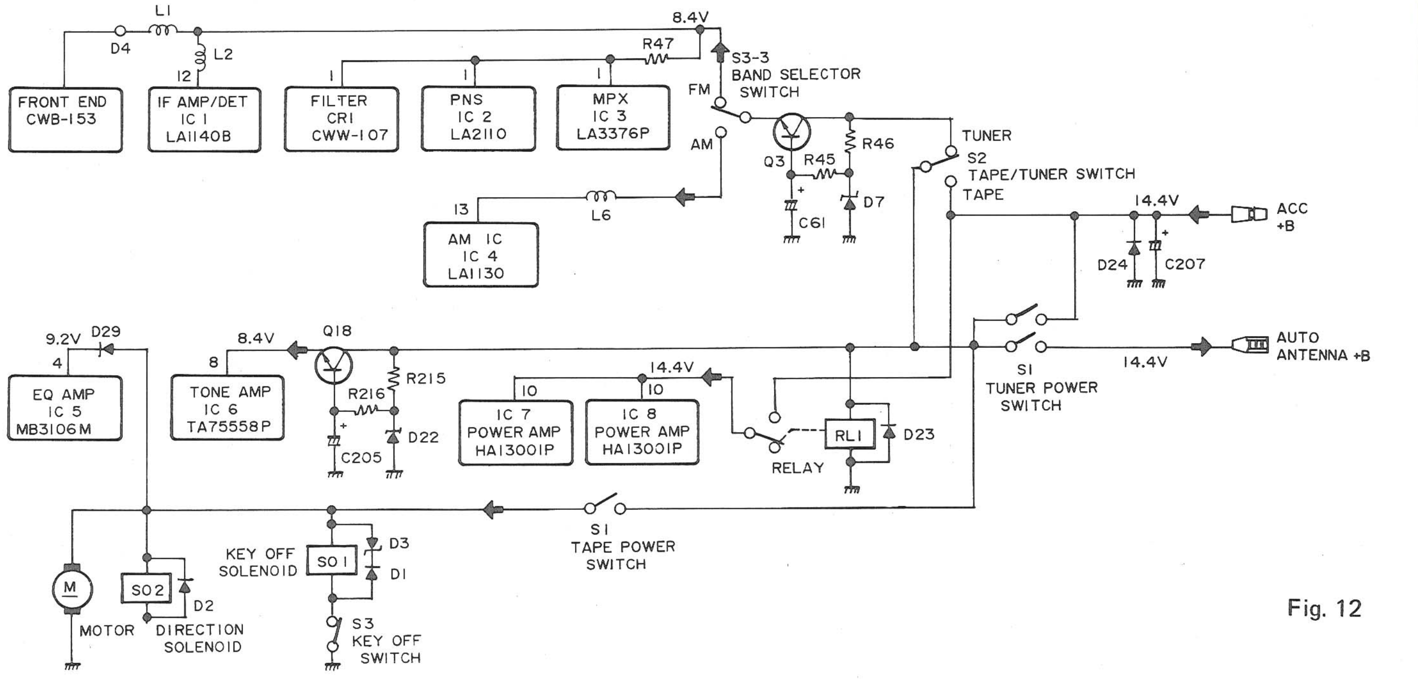

L1
D4
L2
12
8.4V
R47
S3-3
BAND SELECTOR
SWITCH
FM
AM
FRONT END
CWB-153
IF AMP/DET
IC 1
LA1140B
FILTER
CR1
CWW-107
PNS
IC 2
LA2110
MPX
IC 3
LA3376P
Q3
R45
R46
C61
D7
TUNER
S2
TAPE/TUNER SWITCH
TAPE
13
L6
AM IC
IC 4
LA1130
14.4V
ACC
+B
D24
C207
9.2V
D29
4
EQ AMP
IC 5
MB3106M
8.4V
Q18
8
TONE AMP
IC 6
TA75558P
R216
R215
C205
D22
14.4V
10
IC 7
POWER AMP
HA13001P
IC 8
POWER AMP
HA13001P
RL1
D23
RELAY
S1
TUNER POWER
SWITCH
14.4V
AUTO
ANTENNA +B
S1
TAPE POWER
SWITCH
KEY OFF
SOLENOID
SO1
D3
D1
M
MOTOR
SO2
D2
DIRECTION
SOLENOID
S3
KEY OFF
SWITCH

Fig. 12

- **KPH-4800 SDK/WG**

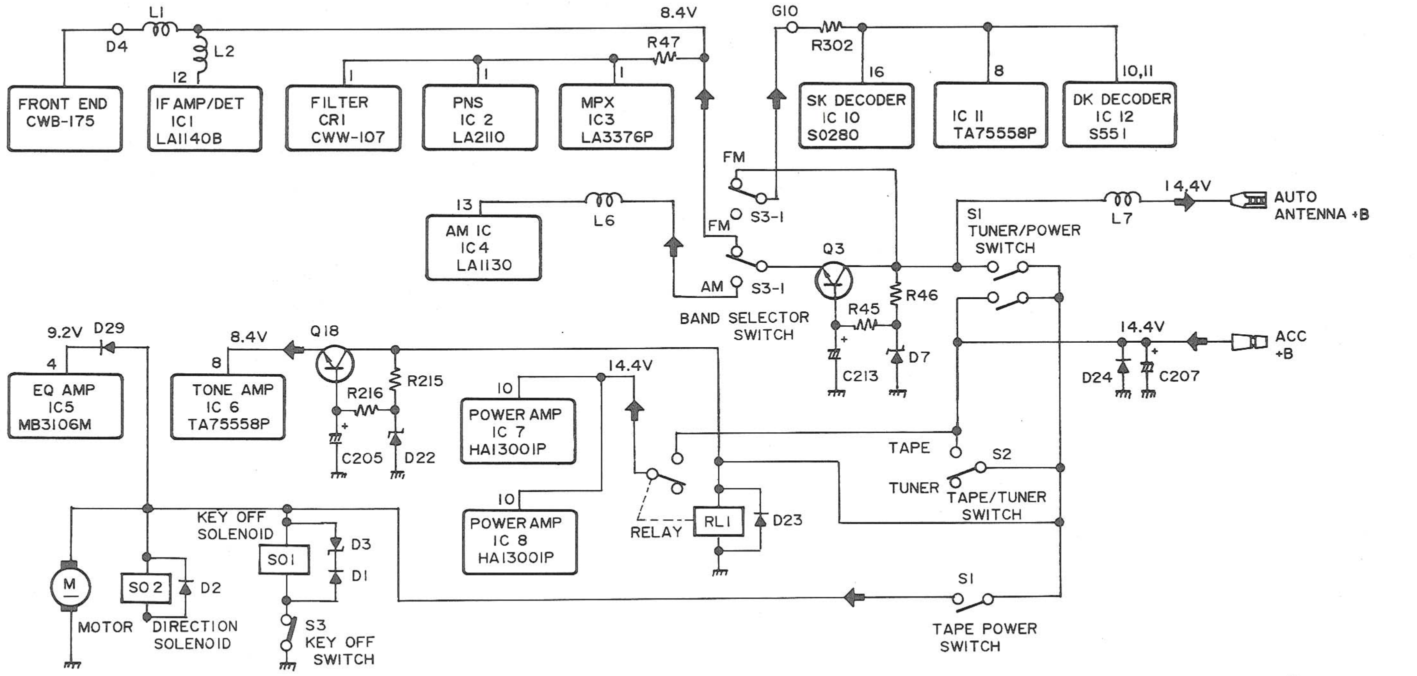

L1
D4
L2
12
8.4V
R47
G10
R302
16
8
10,11
FRONT END
CWB-175
IF AMP/DET
IC1
LA1140B
FILTER
CR1
CWW-107
PNS
IC 2
LA2110
MPX
IC3
LA3376P
SK DECODER
IC 10
S0280
IC 11
TA75558P
DK DECODER
IC 12
S551
FM
S3-1
FM
AM
S3-1
BAND SELECTOR
SWITCH
13
L6
AM IC
IC4
LA1130
Q3
R45
R46
C213
D7
S1
TUNER/POWER
SWITCH
L7
14.4V
AUTO
ANTENNA +B
14.4V
ACC
+B
D24
C207
9.2V
D29
4
EQ AMP
IC5
MB3106M
8.4V
Q18
8
TONE AMP
IC 6
TA75558P
R216
R215
C205
D22
14.4V
10
POWER AMP
IC 7
HA13001P
10
POWER AMP
IC 8
HA13001P
RELAY
RL1
D23
TAPE
S2
TUNER
TAPE/TUNER
SWITCH
KEY OFF
SOLENOID
SO1
D3
D1
M
MOTOR
SO2
D2
DIRECTION
SOLENOID
S3
KEY OFF
SWITCH
S1
TAPE POWER
SWITCH

Fig. 13

5.2 BLOCK DIAGRAM

● KPH-4800/EW, ES

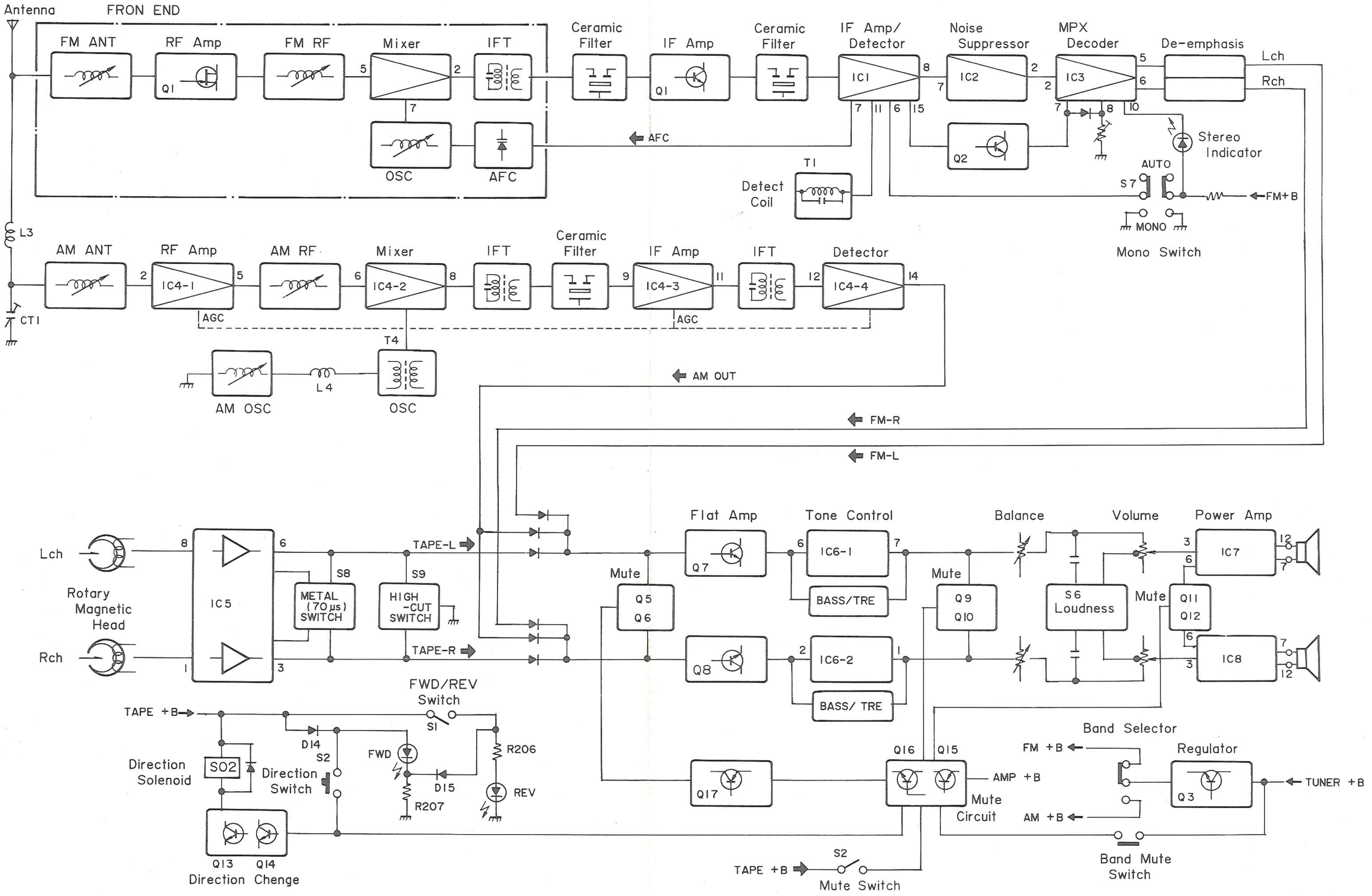

Antenna
FRON END
FM ANT
RF Amp
Q1
FM RF
Mixer
IFT
OSC
AFC
Ceramic Filter
IF Amp
Q1
Ceramic Filter
IF Amp/ Detector
IC1
Noise Suppressor
IC2
Q2
MPX Decoder
IC3
De-emphasis
Lch
Rch
Stereo Indicator
AUTO
S7
MONO
Mono Switch
FM+B
AFC
T1
Detect Coil
L3
CT1
AM ANT
RF Amp
IC4-1
AM RF
Mixer
IC4-2
IFT
Ceramic Filter
IF Amp
IC4-3
IFT
Detector
IC4-4
AGC
AGC
T4
AM OSC
L4
OSC
AM OUT
FM-R
FM-L
Lch
Rch
Rotary Magnetic Head
IC5
METAL (70µs) SWITCH
S8
HIGH -CUT SWITCH
S9
TAPE-L
TAPE-R
Mute
Q5
Q6
Flat Amp
Q7
Q8
Tone Control
IC6-1
IC6-2
BASS/TRE
BASS/ TRE
Mute
Q9
Q10
Balance
S6 Loudness
Volume
Mute
Q11
Q12
Power Amp
IC7
IC8
TAPE +B
Direction Solenoid
SO2
D14
S2
Direction Switch
FWD/REV Switch
S1
FWD
D15
R207
R206
REV
Q13
Q14
Direction Chenge
Q17
Q16
Q15
Mute Circuit
AMP +B
Band Selector
FM +B
AM +B
Regulator
Q3
TUNER +B
Band Mute Switch
TAPE +B
S2
Mute Switch

Fig. 14

- **KPH-4830/EW**

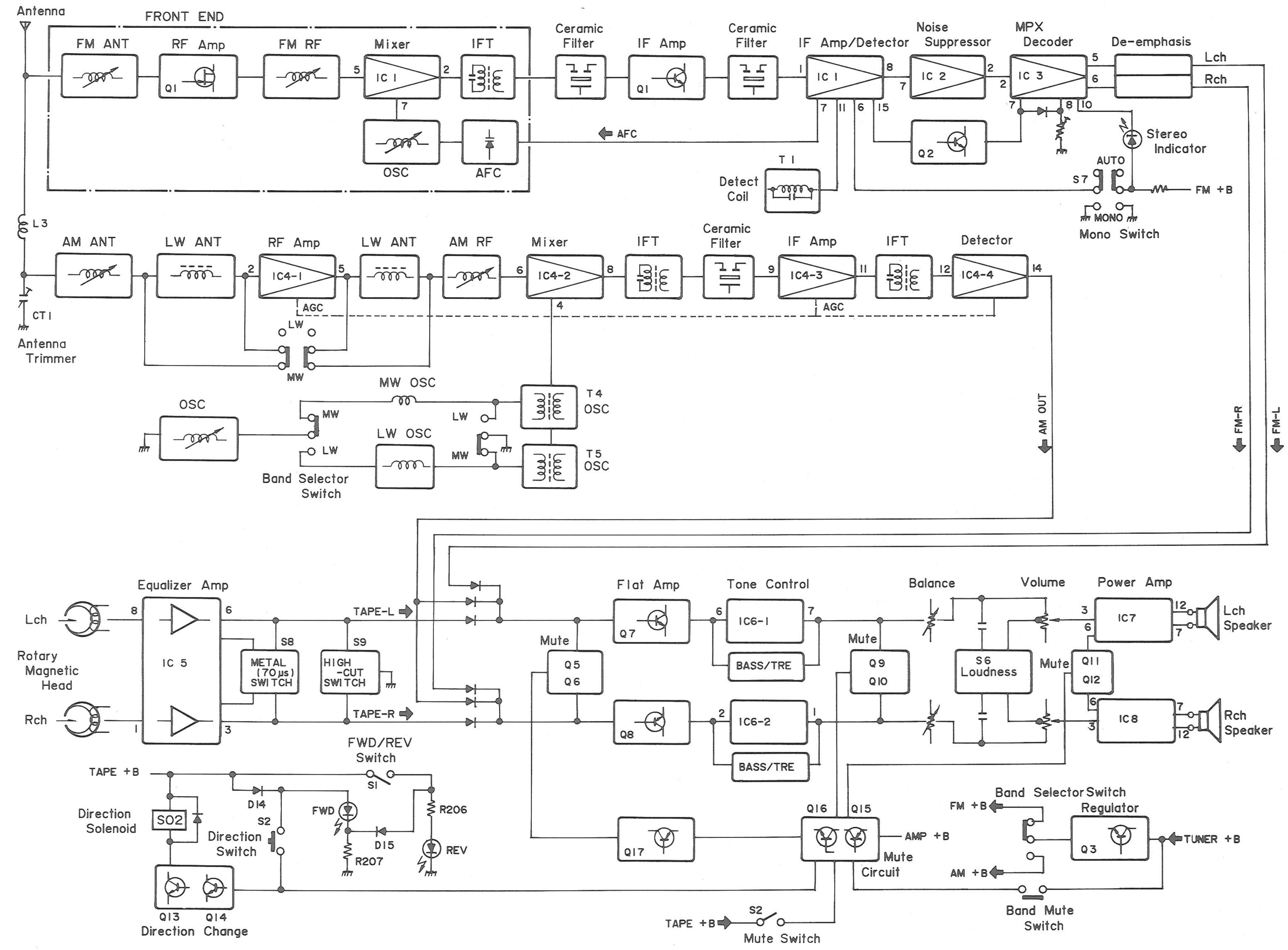

Antenna
FRONT END
FM ANT
RF Amp
Q1
FM RF
Mixer
IC 1
IFT
OSC
AFC
Ceramic Filter
IF Amp
Q1
Ceramic Filter
IF Amp/Detector
IC 1
Noise Suppressor
IC 2
MPX Decoder
IC 3
De-emphasis
Lch
Rch
AFC
Q2
Detect Coil
T1
Stereo Indicator
AUTO
S7
MONO
Mono Switch
FM +B
L3
AM ANT
LW ANT
RF Amp
IC4-1
LW ANT
AM RF
Mixer
IC4-2
IFT
Ceramic Filter
IF Amp
IC4-3
IFT
Detector
IC4-4
AGC
AGC
LW
MW
CT1
Antenna Trimmer
OSC
MW OSC
LW OSC
MW
LW
LW
MW
T4 OSC
T5 OSC
Band Selector Switch
AM OUT
FM-R
FM-L
Equalizer Amp
Lch
Rotary Magnetic Head
Rch
IC 5
S8
METAL (70μs) SWITCH
S9
HIGH -CUT SWITCH
TAPE-L
TAPE-R
Flat Amp
Q7
Q8
Mute
Q5
Q6
Tone Control
IC6-1
BASS/TRE
IC6-2
BASS/TRE
Balance
Mute
Q9
Q10
S6 Loudness
Volume
Mute
Q11
Q12
Power Amp
IC7
IC8
Lch Speaker
Rch Speaker
TAPE +B
FWD/REV Switch
S1
D14
S2
FWD
D15
R206
R207
REV
Direction Solenoid
SO2
Direction Switch
Q13
Q14
Direction Change
Q17
Q16
Q15
AMP +B
Mute Circuit
TAPE +B
S2
Mute Switch
Band Selector Switch
FM +B
Regulator
Q3
TUNER +B
AM +B
Band Mute Switch

Fig. 15

● KPH-4800 SDK/WG

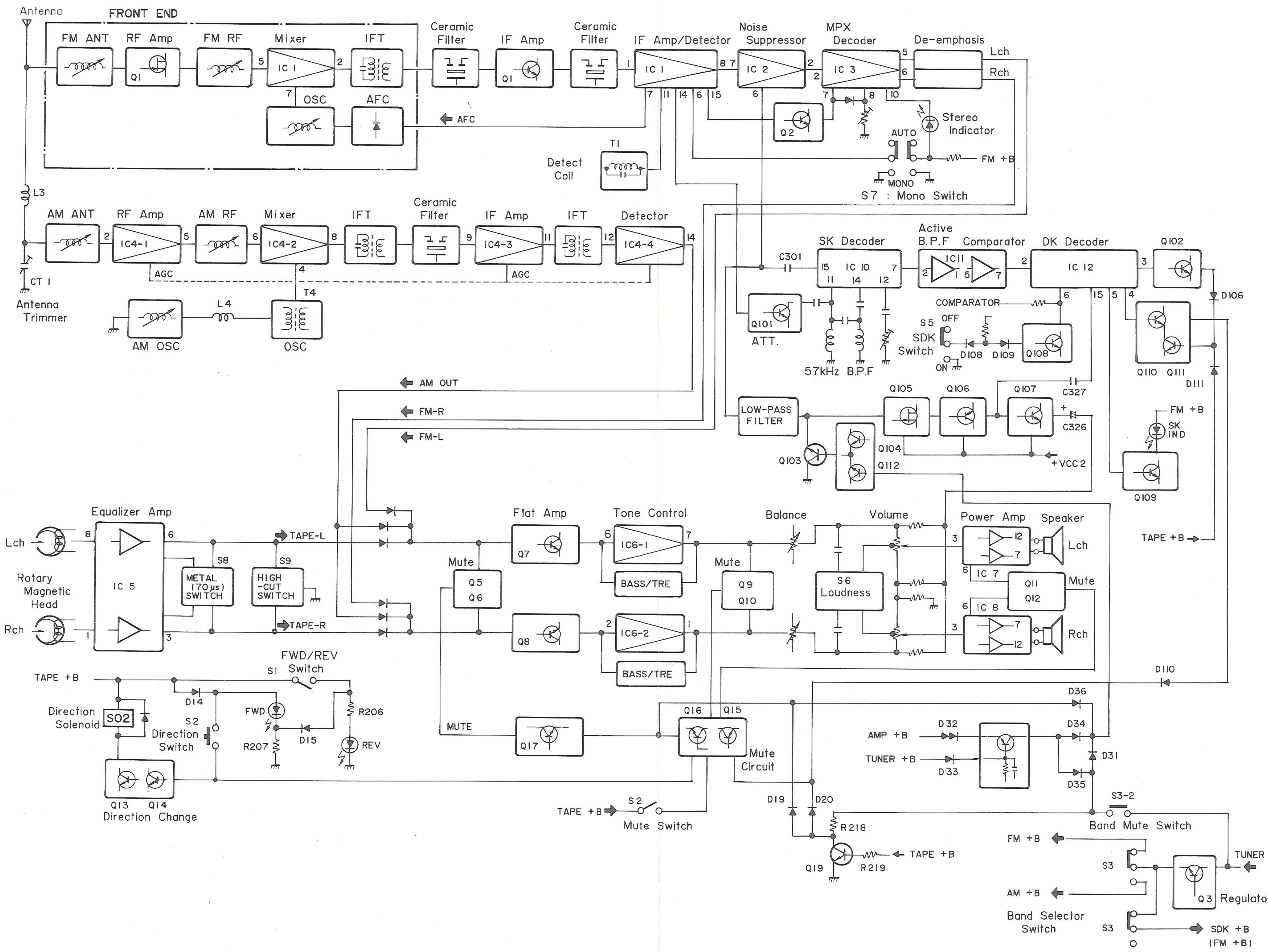

Antenna
FRONT END
FM ANT
RF Amp
Q1
FM RF
Mixer
IC 1
OSC
IFT
AFC
AFC
Ceramic Filter
IF Amp
Q1
Ceramic Filter
IF Amp/Detector
IC 1
Noise Suppressor
IC 2
MPX Decoder
IC 3
De-emphasis
Lch
Rch
Q2
Stereo Indicator
AUTO
MONO
FM +B
S7 : Mono Switch
Detect Coil
T1
L3
AM ANT
RF Amp
IC4-1
AM RF
Mixer
IC4-2
IFT
Ceramic Filter
IF Amp
IC4-3
IFT
Detector
IC4-4
AGC
AGC
T4
CT 1
Antenna Trimmer
AM OSC
L4
OSC
SK Decoder
IC 10
C301
Active B.P.F
IC11
Comparator
DK Decoder
IC 12
Q102
D106
Q101
ATT.
57kHz B.P.F
COMPARATOR
S5 OFF
SDK Switch
ON
D108
D109
Q108
Q110 Q111
D111
AM OUT
FM-R
FM-L
LOW-PASS FILTER
Q105
Q106
Q107
C327
C326
Q103
Q104
Q112
+VCC2
FM +B
SK IND
Q109
TAPE +B
Equalizer Amp
Lch
Rch
Rotary Magnetic Head
IC 5
METAL (70μs) SWITCH
S8
HIGH -CUT SWITCH
S9
TAPE-L
TAPE-R
Mute
Q5
Q6
Flat Amp
Q7
Q8
Tone Control
IC6-1
IC6-2
BASS/TRE
BASS/TRE
Mute
Q9
Q10
Balance
Volume
S6 Loudness
Power Amp
Speaker
Lch
Rch
IC 7
IC 8
Q11
Q12
Mute
TAPE +B
FWD/REV Switch
S1
D14
Direction Solenoid
SO2
S2 Direction Switch
FWD
R206
R207
D15
REV
Q13 Q14 Direction Change
MUTE
Q17
Q16
Q15
Mute Circuit
TAPE +B
S2
Mute Switch
D110
D36
AMP +B
D32
TUNER +B
D33
D34
D31
D35
D19
D20
R218
Q19
R219
TAPE +B
S3-2
Band Mute Switch
FM +B
S3
AM +B
Band Selector Switch
S3
Q3
Regulator
TUNER +B
SDK +B (FM +B)

Fig. 16

5.3 FM TUNER SECTION

The intermediate frequency signal is converted to 10.7 MHz by the front end section, which contains an FET 1-stage RF amplifier*. After passing through a ceramic filter (CF1), the intermediate frequency signal passes through Q1 and CF2, and is subject to amplification, limiting amplification and detection by IC1. IC1, which contains a quadrature detector circuit, performs soft-muting, IF bandwidth muting, and outputting of signal strength. As the signal detected by IC1 passes through the PNS (pulse noise suppressor) of IC2, ignition noise is eliminated. The signal is then routed through the MPX decoder (IC3) and the deemphasis circuits (R30, C34, R29 and C33) to the switching diodes (D3 and D4).

As the composite signal passes through IC3, DC voltage in proportion to the signal strength goes from IC1 pin 15, through the Q2 buffer to pin 7. Low frequency control in the high frequency range is carried out in proportion to the signal strength. Separation control is then carried out at pin 8, after the signal passes through the diode.

*Front ends CWB-153 and CWB-175 differ in receiving frequency range. The receiving frequency range is 87 MHz – 109 MHz for the former and 87.5 MHz – 107.5 MHz for the latter.

5.4 AM TUNER SECTION

The AM tuner section operates by permeability tuning at IC4. It features wide-band AGC and a wide dynamic range. The demodulated signal goes to switching diodes D5 and D6.

5.5 TAPE PLAYER SECTION

The tape player section of this unit is an auto-reverse tape player employing a rotating magnetic head. The signal from the head is routed to switching diodes D9 and D10 after passing through the equalizer at IC5.

● Direction Indicator Section (Fig. 17)

When the tape player is rnning in the reverse direction, D202 is illuminated because DC voltage is applied to D202 through the FWD/REV switch. At this time, D201 is "off" because reverse bias is being applied through D15. When the tape player is running in the forward direction, D202 is "off" because no DC voltage is being applied to that diode. The current which is flowing towards D202 is blocked by D15 because D201 is illuminated. D14 assures that D201 will go "off" by compensating the drop in voltage at D15.

● Direction Switching Circuit (Fig. 18)

When the direction Switch (S2) is pressed, the voltage applied to both ends of R204 is differentiated at C201 and R203. The rising edge of this differentiated voltage drives Q14 and Q13, which switches the solenoid "on," thereby changing the tape running direction.

In addition, a mute signal is emitted by S2 when the running direction is changed.

5.6 SIGNAL SWITCHING SECTION

The signal from the FM section passes through switching diodes D3 and D4; the signal from the AM section passes through switching diodes D5 and D6, and the signal from the tape player section passes through switching diodes D9 and D10. In models KPH-4800/EW, KPH-4800/ES and KPH-4830/EW the power source is switched between the FM, AM and tape player circuits. As voltage is applied to one of these circuits, it makes the corresponding diode conductive, and the signal from the operating circuit is routed through the buffer circuits at Q7 and Q8 to power amplifier IC7 and IC8. In model KPH-4800SDK/WG, the tuner circuit is active even when the unit is in the tape player mode. Therefore, when in the tape player mode, the voltage at the anode side of switching diodes D9 and D10 is set higher than the voltage (from the AM or FM section) at the anode side of switching diodes (D5, D6, D3 and D4). This applies reverse bias to the latter diodes, thus disconnecting the signal from the tuner section.

When in the tuner mode, voltage is not applied to IC5. The voltage at the anode side of switching diodes D9 and D10 is therefore 0V, and the signal from the tape player section is disconnected because voltage applied from the tuner applies reverse bias to these diodes. In the tuner, the signal from the AM or FM circuit (whichever is "on") is routed through Q7 and Q8 to the power amplifier.

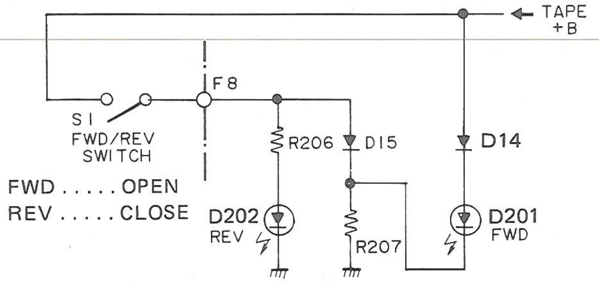


Fig. 17

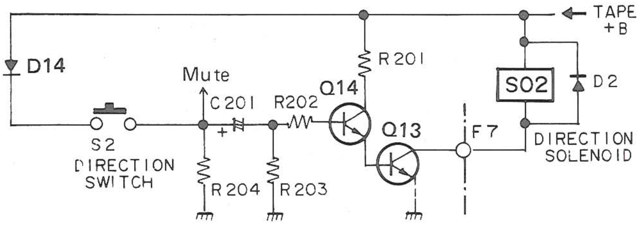


Fig. 18

5.7 MUTE CIRCUIT

The mute circuit consists of the mute signal generating circuit (Q15 and Q16) and the signal attenuator circuit (Q5, Q6 and Q9, Q10) (Model KPH-4800SDK/WG has, in addition, a mute signal generating circuit (Q20)).

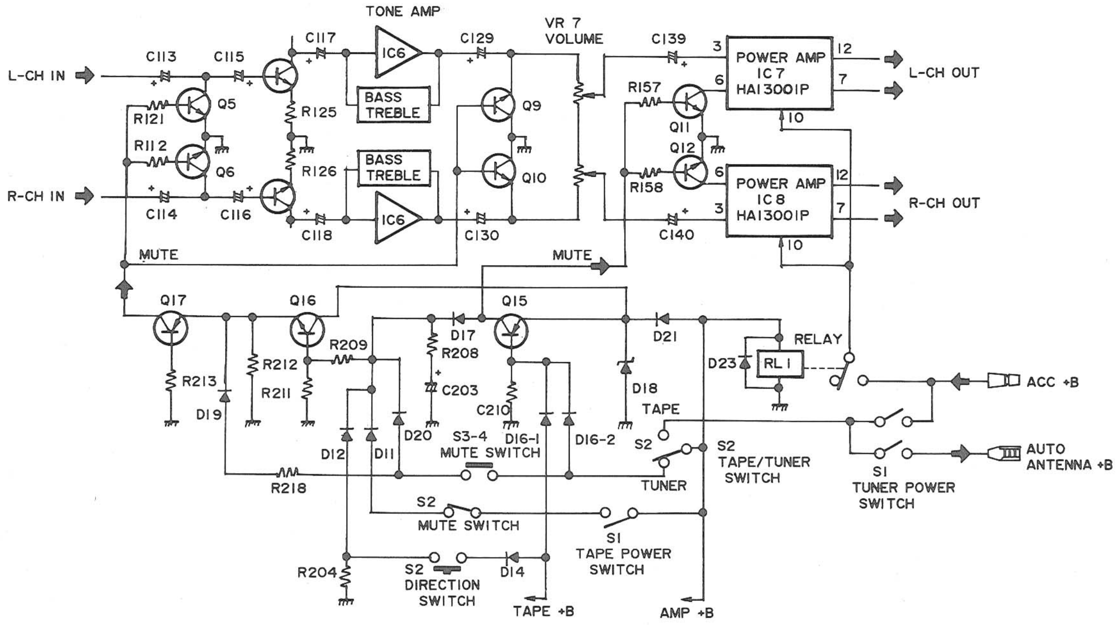

TONE AMP
L-CH IN
R-CH IN
C113
C115
C117
C114
C116
C118
IC6
BASS TREBLE
BASS TREBLE
R121
R112
Q5
Q6
R125
R126
C129
C130
VR 7 VOLUME
Q9
Q10
C139
C140
R157
R158
Q11
Q12
POWER AMP IC7 HA13001P
POWER AMP IC8 HA13001P
L-CH OUT
R-CH OUT
MUTE
MUTE
Q17
Q16
Q15
R209
R212
R211
R213
D19
D17
R208
C203
C210
D20
D12
D11
S3-4 MUTE SWITCH
D16-1
D16-2
D21
D18
TAPE
D23
RL1
RELAY
ACC +B
S2
TUNER
S2 TAPE/TUNER SWITCH
S1 TUNER POWER SWITCH
AUTO ANTENNA +B
R218
S2 MUTE SWITCH
S1 TAPE POWER SWITCH
R204
S2 DIRECTION SWITCH
D14
TAPE +B
AMP +B

Fig. 19

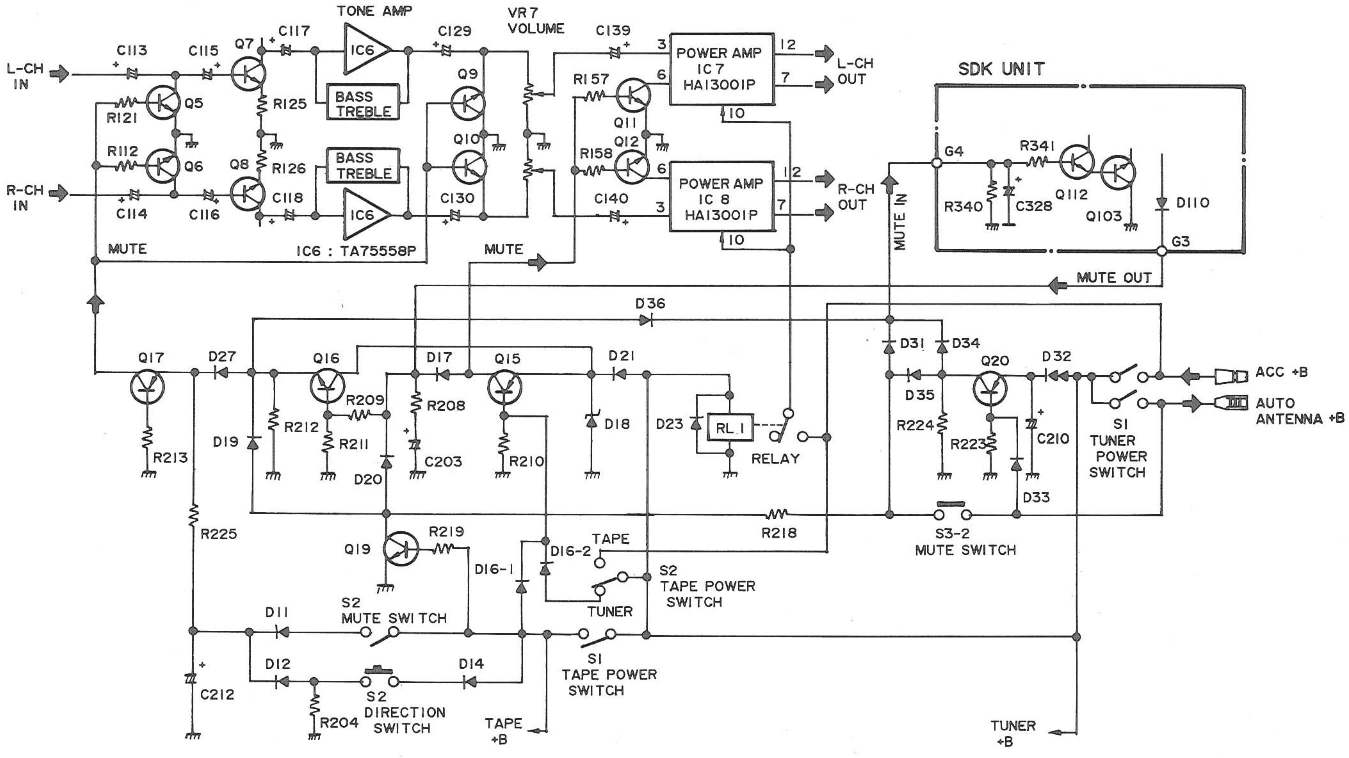

TONE AMP
L-CH IN
R-CH IN
C113
C115
Q7
C117
C114
C116
Q8
C118
IC6
BASS TREBLE
BASS TREBLE
R121
R112
Q5
Q6
R125
R126
IC6 : TA75558P
MUTE
C129
C130
VR7 VOLUME
Q9
Q10
C139
C140
R157
R158
Q11
Q12
POWER AMP IC7 HA13001P
POWER AMP IC 8 HA13001P
L-CH OUT
R-CH OUT
MUTE
SDK UNIT
G4
R341
R340
C328
Q112
Q103
D110
G3
MUTE IN
MUTE OUT
D36
Q17
D27
Q16
D17
Q15
D21
D31
D34
Q20
D32
ACC +B
AUTO ANTENNA +B
R213
D19
R212
R209
R211
R208
C203
D20
R210
D18
D23
RL1
RELAY
D35
R224
R223
C210
D33
S1 TUNER POWER SWITCH
R225
Q19
R219
D16-1
D16-2
TAPE
R218
S3-2 MUTE SWITCH
S2 TAPE POWER SWITCH
TUNER
D11
S2 MUTE SWITCH
D12
D14
S2 DIRECTION SWITCH
C212
R204
TAPE +B
S1 TAPE POWER SWITCH
TUNER +B

Fig. 20

○ Mute Signal Generating Circuit

The emitter of Q15 is connected to the + B line of the main amplifier through D21. At this time, C204 is charged. Q15 is normally not conducting, because the voltage reaching its base through D16-1 and D16-2 is equal to the voltage at the main amplifier + B. When a tape is ejected, however, Q15 goes "on," because the voltage at its base drops below the voltage at its emitter, and current flows to its collector.

Current then flows to the base of Q16 (emitter follower in the next stage), and muting voltage is generated at the emitter side of R212. This voltage passes through Q17, turning Q5, Q6 and Q9, Q10 "on," grounding the signal line and causing muting to take place. This suppresses the "popping" noise generated when power is switched off or when a tape is inserted or ejected. (In model KPH-4800SDK/WG, muting voltage is also applied to the base of Q112 through D36, causing muting in the DK interrupt signal line as well.

○ When Changing Bands

Muting takes place to suppress the "popping" noise generated when changing bands. When changing bands, DC voltage flows from the "band-change muting" switch (S3) through R218 and D20 to the base of Q16 and to R212 through R218 and D19. This causes muting to take place. D19 compensates for the delay in voltage rise as C203 is charged. The muting period is also determined by C203. In model KPH-4800SDK/WG, "band-change muting" is also applied through D31 to the base of Q112 of the SDK unit, causing muting in the DK interrupt signal line (traffic information) as well. Because the tuner is operating when in the tape player mode, that power source voltage turns Q16 "on." Tape + B is applied to the base of Q19 through R219, preventing the AF signal line (tape player, tuner) "band-change muting" from operating.

○ During FF/REW; During "Direction-Change"

Muting takes place to suppress the "popping" noise generated due to mechanism operation during FF/REW and "direction-change"' Voltage is applied through D11 to the base of Q15 from the "mechanism muting" switch (S2), and through D12 from the "direction" switch (S2). This causes muting to take place. (In model KPH-4800SDK/WG, muting voltage is applied during the above operations through R225 only to the AF signal line (tape player, tuner), in order that interrupt can occur even during FF/REW and "direction change.")

C212 determines the muting period. In addition, if operation of SDK is attempted when in the tape player mode with the tuner power switch (S1) in the "on" position, the "A" contact of S1 closes before the "B" contact of that switch, charging C210 through D32. Before contact "B" closes, the base of Q20 is turned "on" through R223, muting voltage is generated at both ends of R224, Q112 is turned "on" through D34 and muting occurs in the DK interrupt signal line. Muting also occurs in the AF signal line (tape player, tuner) as Q5, Q6, and Q9, Q10 are turned "on" through D35, R218 and D20 and through D19 and D27. When contact "B" closes, voltage is applied to the base of Q20 through D33. This causes Q20 to stop conducting, thereby suppressing the generation of a mute signal. During SDK operation, the SK mute signal is applied directly to the bases of Q5, Q6 and Q9, Q10 from the SKD unit, causing muting of the AF signal line (tape player, tuner).

5.8 SDK UNIT SECTION (SDK Switch is "ON") (Refer to Circuit Diagram for (KPH-4800SDK/WG))

The composite signal, which is inputted at pin 7 of IC2, passes through an internal buffer amplifier, and is outputted at pin 6. It is then inputted at terminal G8 of the SDK unit. The inputted composite signals is separated into two signals. One signal passes through C323, then through the low-pass filter consisting of R324, C324, R325, and C325. After the pilot signal (38 kHz) and SK signal (57 kHz) are eliminated, the signal is amplified at Q105 and Q106, then outputted at terminal G1 after passing through the buffer amplifier at Q107. (This route is the interrupt signal line during DK operation.) A mute circuit consisting of Q103, Q112 and Q104 is connected at the Q105 gate. Muting voltage is applied to Q112 through terminal G4 when power is switched on or off, during band changing, and so forth, thereby eliminating the "popping" noise inputted from terminal G8. Q103, Q112 and Q104 go "off" when there is a DK signal, outputting an interrupt signal at terminal G1.

The other signal is inputted at pin 15 of IC 10 after passing through C301. Because the capacity of C301 is low, it passes the high range component (the SK signal) easily. R304, which is connected to pin 2 of the reference power source, is the bias resistor for the impedance conversion amplifier inside the IC. The signal which is inputted at pin 15 passes through the impedance conversion amplifier inside the IC. Pre-emphasis is then applied due to the constant at pin 13, and the signal is outputted at pin 14.

A double-tuned circuit tuned to 57 kHz (the SK signal) is connected at pin 14, eliminating signals other than the SK signal. The signal outputted from this double-tuned circuit is inputted at pin 11, and is further amplified by an internal amplifier. When the output voltage at pin 14 exceeds the Q101 base-emitter voltage created by D101 and D102, Q101 goes "on." This causes the output of the double-tuned circuit to adjust the level of the signal inputted at pin 11. This prevents malfunction of the double-tuned circuit when that circuit is detuned.

At this time, gain may be adjusted (thereby adjusting SK sensitivity) by adjusting VR101, which is connected at pin 12.

In this way, the amplified SK signal is detected by an internal detector. Pin 9 outputs the existence of an SK signal. When an SK signal is detected, it goes "high." The DK signal amplitude-modulated by the SK signal is detected and outputed at pin 7.

A 456 kHz ceramic oscillator is attached at pin 5. it is used both internally, and to output 57 kHz (1/8 of the above frequency) at pin 6, which is then inputted by IC12 (latter stage). The 125 kHz DK signal, which is outputted at pin 7 of IC10, passes through a band pass filter at IC11 (1/2). It is then inputted at the comparator at the latter stage IC11 (2/2) and shaped into a waveform. IC12 detects the existence of a DK signal. When the waveform shaped DK signal is inputted from IC11 at pin 2, pin 3 goes "high" and pin 4 goes "low." Pin 5, the connection to the SK indicator, goes "high" when an SK signal is detected, causing Q109 to go "on" and illuminating the indicator. Pin 6 is the ON/OFF pin for IC12. IC12 is activated when the base bias of Q108 is grounded through D108, causing the voltage at its collector to go "high." A 1.7 kHz alarm signal, which increases in volume in three stages, sounds 30 seconds after the SK signal ceases at pin 15. This output is applied to the base of Q107 through R318 and C327 and outputted at terminal G1.

When the voltage at pin 4 of IC12 is "high" (when neighter SK nor DK signal is being detected), Q103 and Q104 are "on," and muting occurs in the interrupt signal line.

Muting occurs in the AF signal line (tape player, tuner) when voltage is outputted at terminal G3. This pin is connected serially to Q110 and Q111. During operation of the tape player, terminal G5 is "high," and Q111 is "on" (controlled by base of Q110). If a DK signal is detected, pin 4 of IC12 goes "low," Q110 goes "off," and the output at terminal G3 goes "high." This causes sound from the tape player to be muted, and the interrupt signal line causes traffic information to be outputted.

If a DK signal is detected during operation of the tuner, pin 3 of IC12 goes "high" and Q102 causes Q111 to go "on." At this time, pin 4 goes "low," muting voltage is outputted at terminal G3, and muting occurs in the AF signal line (tape player, tuner). In the DK interrupt signal line, Q104 and Q103 go "off." and traffic information is outputted. When neither an SK signal nor a DK signal is being detected, pin 3 is "low," pin 4 is "high," Q110 is "on," and Q111 is "off." When muting voltage is outputted at terminal G3, muting also occurs in the DK interrupt signal line.

● SDK Interrupt Circuit

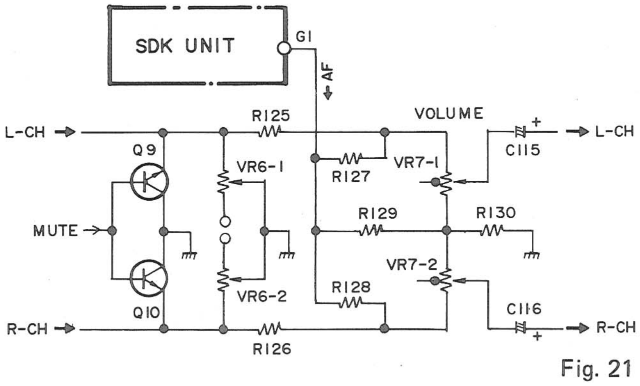


Fig. 21

During DK interrupt, the traffic information which is outputted from terminal G1 of the SDK unit is applied through R127 and R128 to the left and right channels of the early stage VR7 (because Q9 and Q10 are "on," the level is divided between R125 and R126). This output can be adjusted at VR7 (VOLUME). The output divided between R129 and R130 is inputted on the ground side of VR7, so that output occurs even when volume is adjusted to "minimum."

● Operation of Individual Sections when in the SDK Mode (SDK Switch "ON")

Pin Name	Condition			Standard			
Pin No.	Input Signal	AGC	Tape + B	SK-IND.	Interrupt Output	Alarm Out	Mute Out
Situation	*1 G8	G9	G5	G6	G1		G3
1	DK + AF	L	H	ON	○	X	H
2	DK + AF	L	L	ON	○	X	H
3	DK + AF	H	L	OFF	X	X	H
4	DK + AF	H	H	OFF	X	X	L
5	SK + AF	L	L	ON	X	X	L
6	AF	L	L	OFF	X	*1 ○	H
7	AF	L	H	OFF	X	*1 ○	L

*1 AF: 400 Hz, −10 dB
SK: 57 kHz ±10 Hz, 5 mV
DK: SK signal, 30% amplitude modulated at 125 Hz

*2 Alarm output occurs 30 seconds after changing from situations 1 – 5 to situation 6 or situation 7. Output increases in intensity in three steps.

5.9 LEVEL DIAGRAM

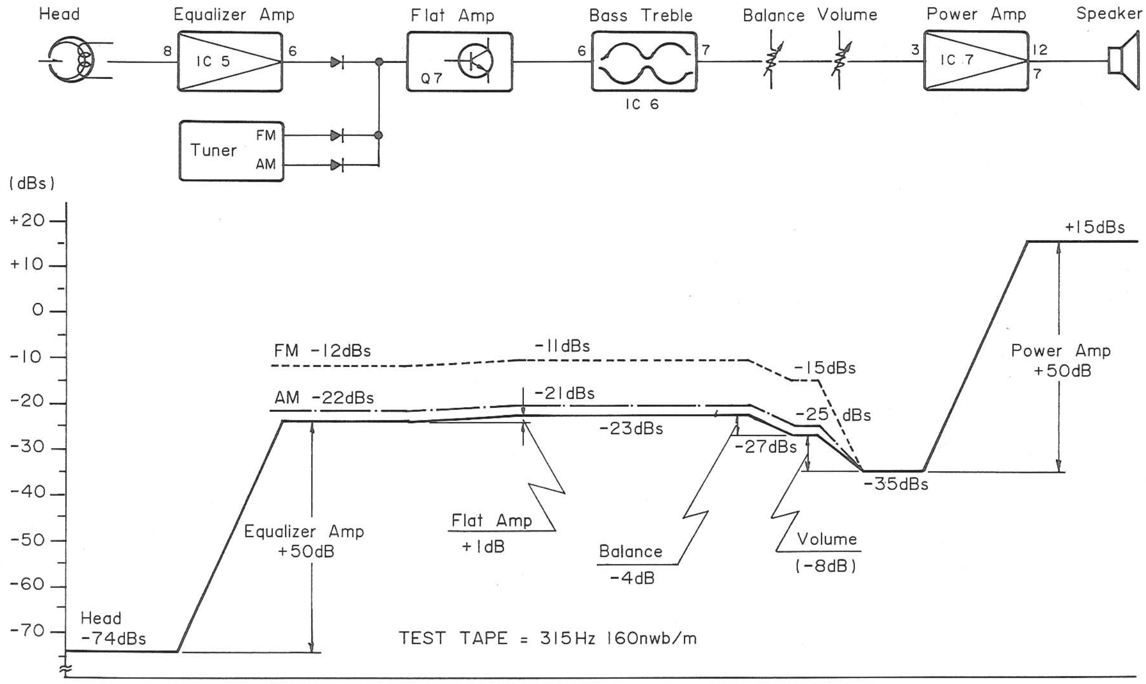
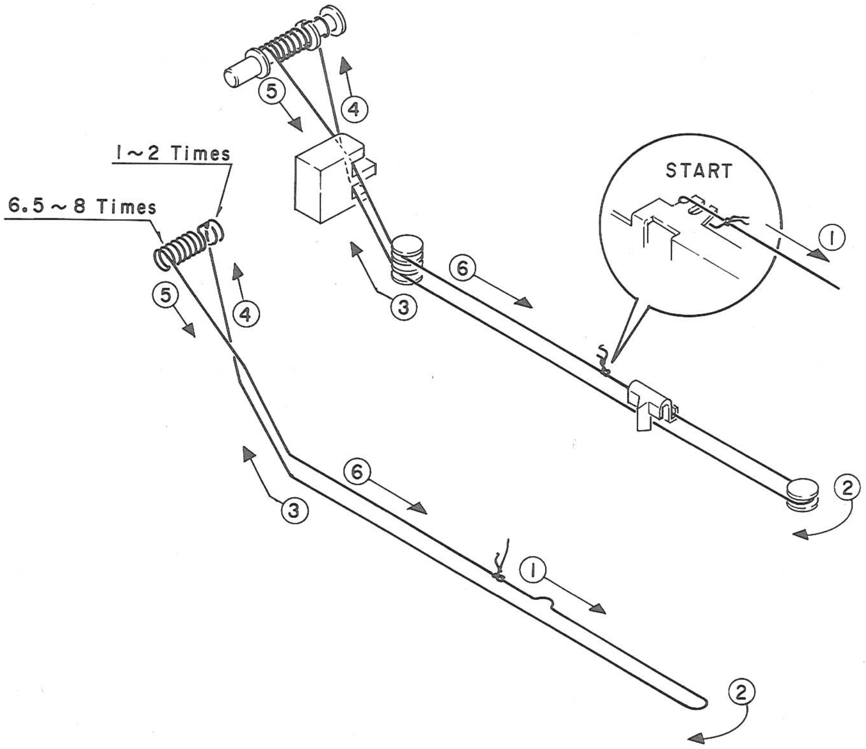


Fig. 22

6. DIAL STRINGING

1. To start dial stringing, remove the cassette mechanism unit at first.
2. Turn the tuning shaft fully to the right.
3. When dial stringing, follow the numerical sequence and operate securely as there is no looseness on the way.



1～2 Times
6.5～8 Times
START
①
②
③
④
⑤
⑥

Fig. 23

7. ADJUSTMENT

Noise Generator

A noise generator is used when adjusting the FM IF. The noise generator circuit and pattern diagrams below are for reference.

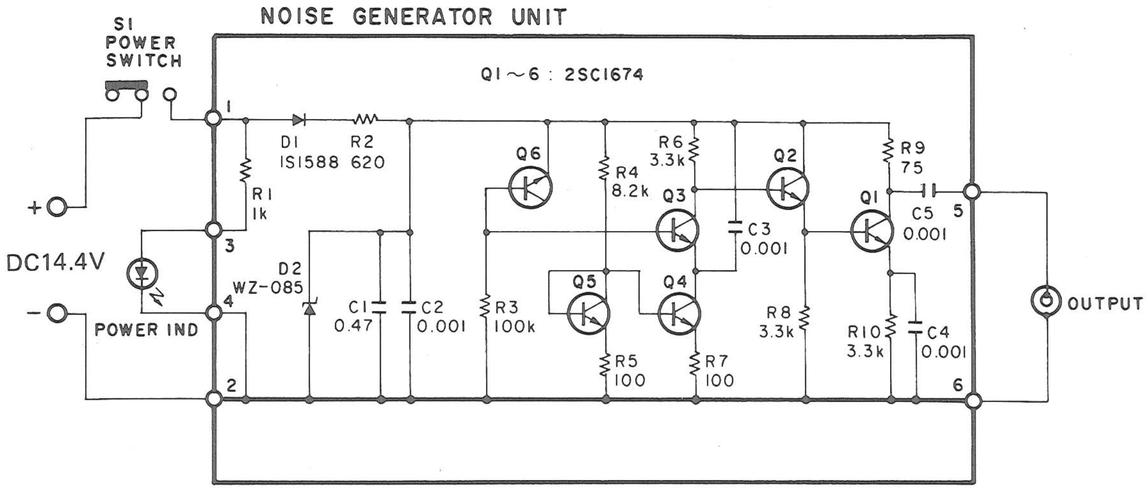

S1
POWER SWITCH
NOISE GENERATOR UNIT
Q1~6 : 2SC1674
+
DC14.4V
−
POWER IND
1
2
3
4
D1 1S1588
R2 620
R1 1k
D2 WZ-085
C1 0.47
C2 0.001
R3 100k
Q6
R4 8.2k
Q5
R5 100
R6 3.3k
Q3
Q4
R7 100
Q2
C3 0.001
R8 3.3k
Q1
R9 75
C5 0.001
R10 3.3k
C4 0.001
5
6
OUTPUT

Fig. 24

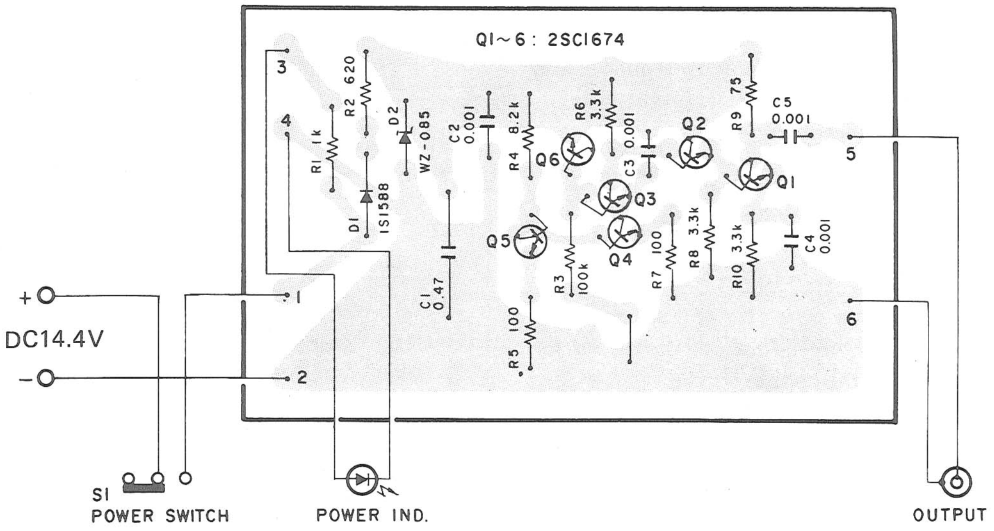

Q1~6 : 2SC1674
3
4
R1 1k
R2 620
D1 1S1588
D2 WZ-085
C2 0.001
C1 0.47
R4 8.2k
Q6
Q5
R3 100k
R5 100
R6 3.3k
Q3
Q4
C3 0.001
R7 100
Q2
R8 3.3k
R9 75
C5 0.001
Q1
R10 3.3k
C4 0.001
5
6
1
2
+
DC14.4V
−
S1
POWER SWITCH
POWER IND.
OUTPUT

Fig. 25

7.1 FM IF ADJUSTMENT

● Connection Diagram

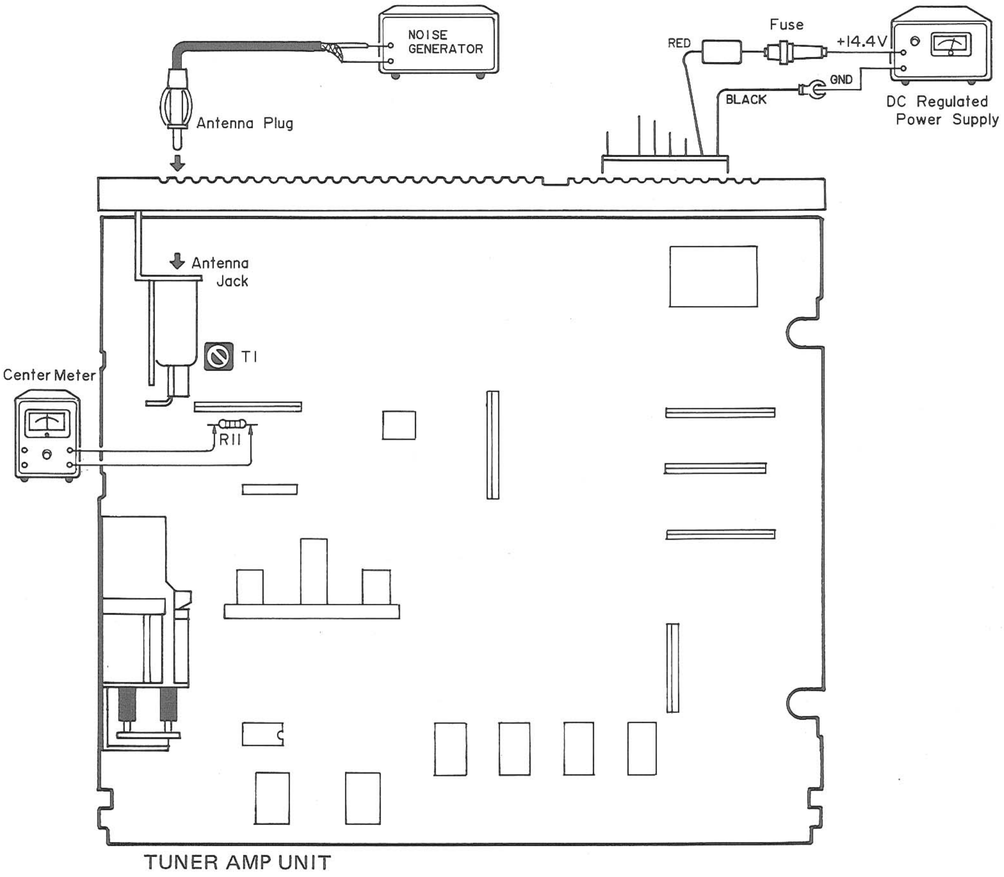

NOISE GENERATOR
Antenna Plug
Fuse
RED
+14.4V
GND
BLACK
DC Regulated Power Supply
Antenna Jack
T1
Center Meter
R11
TUNER AMP UNIT

Fig. 26

● To Adjust

1. Add input signal from noise generator and adjust T1 so that the pointer of center meter will come to the center.

7.2 FM TRACKING ADJUSTMENT

● Connection Diagram

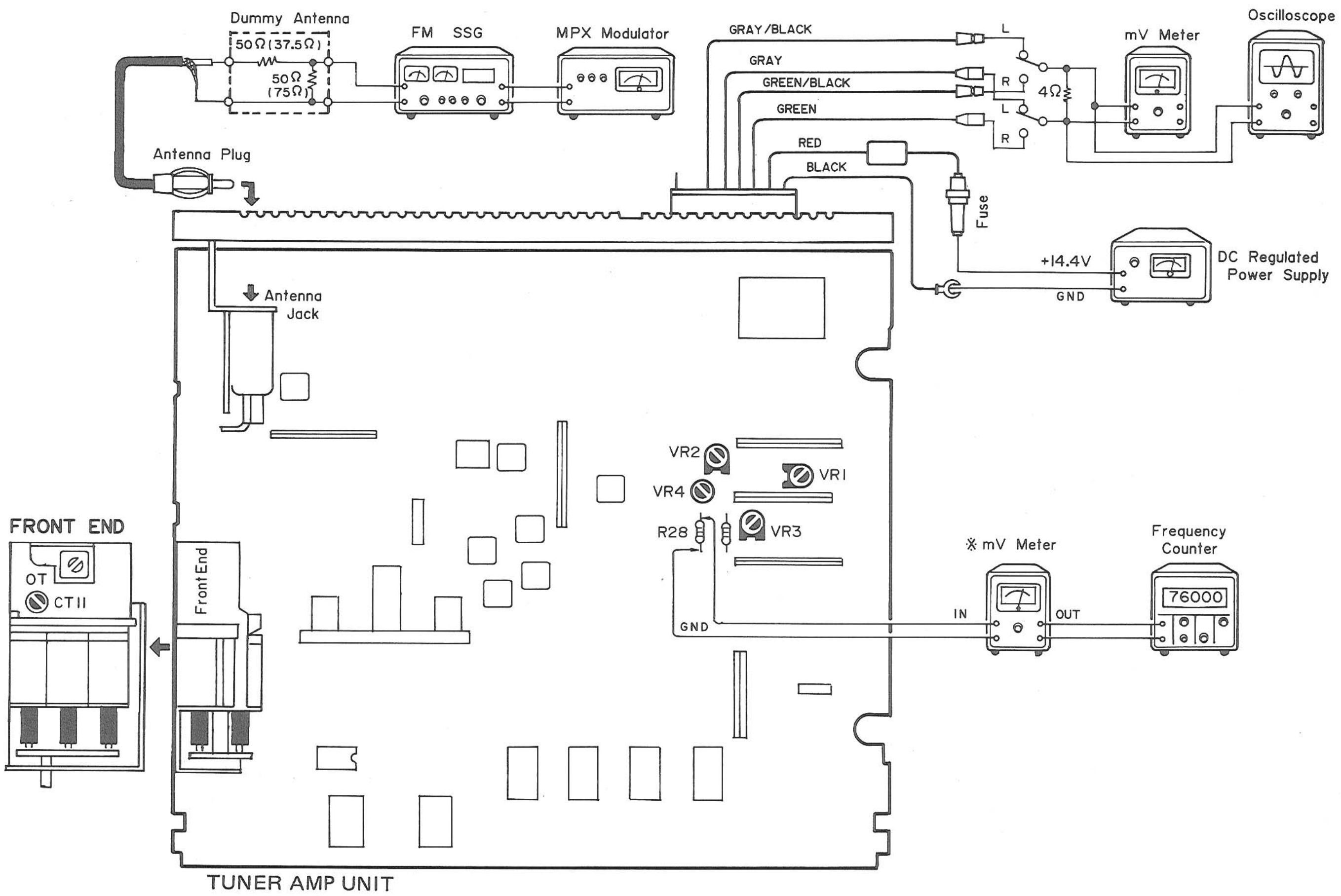

Dummy Antenna
50Ω (37.5Ω)
50Ω
(75Ω)
FM SSG
MPX Modulator
GRAY/BLACK
GRAY
GREEN/BLACK
GREEN
RED
BLACK
L
R
L
R
4Ω
mV Meter
Oscilloscope
Antenna Plug
Fuse
+14.4V
GND
DC Regulated Power Supply
Antenna Jack
VR2
VR1
VR4
R28
VR3
FRONT END
OT
CT11
Front End
※ mV Meter
Frequency Counter
IN
OUT
GND
76000
TUNER AMP UNIT

Fig. 27

*mV Meter

Input Impedance .... More than 1MΩ

Input Capacity .... Less than 100pF

● To Adjust (KPH-4800/EW,ES, KPH-4830/EW)

SSG Frequency	Pointer Position	Adjustment Point	Note
1. 87.0MHz (400Hz, 100% modulation), output level 10 dB (μV)	Minimum	CT11 (FRONT END)	87.0MHz can be received.
2. 108.5MHz (400Hz, 100% modulation), output level 10 dB (μV)	Maximum		Check if 108.5MHz can be received.

● To Adjust (KPH-4800SDK/WG)

SSG Frequency	Pointer Position	Adjustment Point	Note
1. 87.5MHz (400Hz, 100% modulation), output level 10 dB (μV)	Minimum	CT11 (FRONT END)	87.2MHz can not be received.
2. 107.5MHz (400Hz, 100% modulation), output level 10 dB (μV)	Maximum		Check if 108.3MHz can not be received.

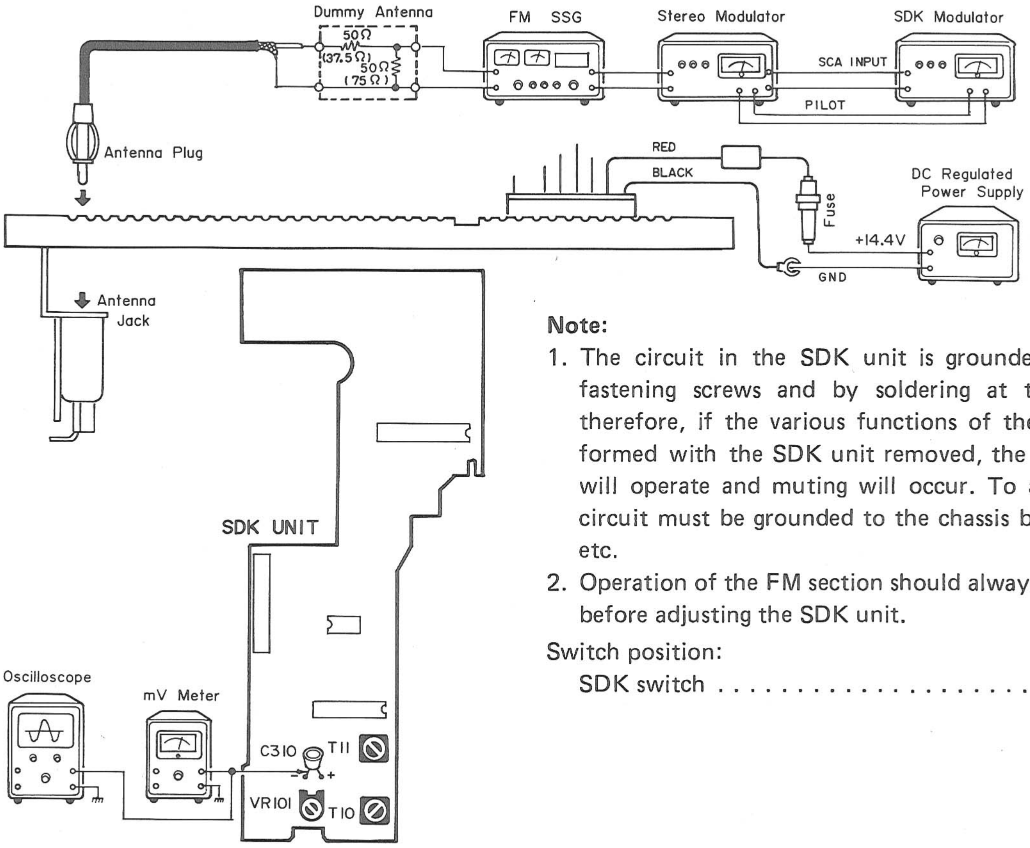
7.3 FM MPX ADJUSTMENT

- **Connection Diagram (Shown in Fig. 27)**
- **To Adjust**

1. Adjust VR4 to make the frequency counter show 76kHz ±120Hz by applying an unmodulated signal of 98MHz and 60dB (μV) from the FM SSG.
2. Adjust VR2 to reduce the oscilloscope wave to the minimum using only the modulation for the pilot signal (10%) and 60dB (μV).
3. Adjust VR1 to obtain best separation by applying a stereo signal (1kHz, 100% modulation).
4. Adjust VR3 to obtain a 5dB separation by making the input signal 35dB (μV).

7.4 SDK DECODER ADJUSTMENT (KPH-4800SDK/WG)

- **Connection Diagram**


Dummy Antenna
50Ω
(37.5Ω)
50Ω
(75Ω)
FM SSG
Stereo Modulator
SDK Modulator
SCA INPUT
PILOT
Antenna Plug
RED
BLACK
Fuse
DC Regulated Power Supply
+14.4V
GND
Antenna Jack
SDK UNIT
Oscilloscope
mV Meter
C310
T11
VR101
T10

Note:

1. The circuit in the SDK unit is grounded through the fastening screws and by soldering at the front end. therefore, if the various functions of the unit are performed with the SDK unit removed, the muting circuit will operate and muting will occur. To avoid this, the circuit must be grounded to the chassis by using a wire, etc.
2. Operation of the FM section should always be confirmed before adjusting the SDK unit.

Switch position:

SDK switch . . . . ON

Fig. 28

- **To Adjust**

1. Set the FM SSG as follows

Carrier	98MHz
Modulation (audio)	400Hz, 60% (Deviation 45kHz)
Modulation (SK)	57kHz, 5% (Deviation 3.75kHz)
Antenna Input Level	60dB (μV)

2. Maximize resistance by turning VR101 clockwise.
3. Adjust T10 and T11 so that the mV meter reading is maximized.
4. Next, adjust the FM SSG attenuator so that antenna input is 15dB (μV). Adjust VR101 so that the SK indicator is illuminated.

7.5 AM (MW/LW) IF ADJUSTMENT

● Connection Diagram

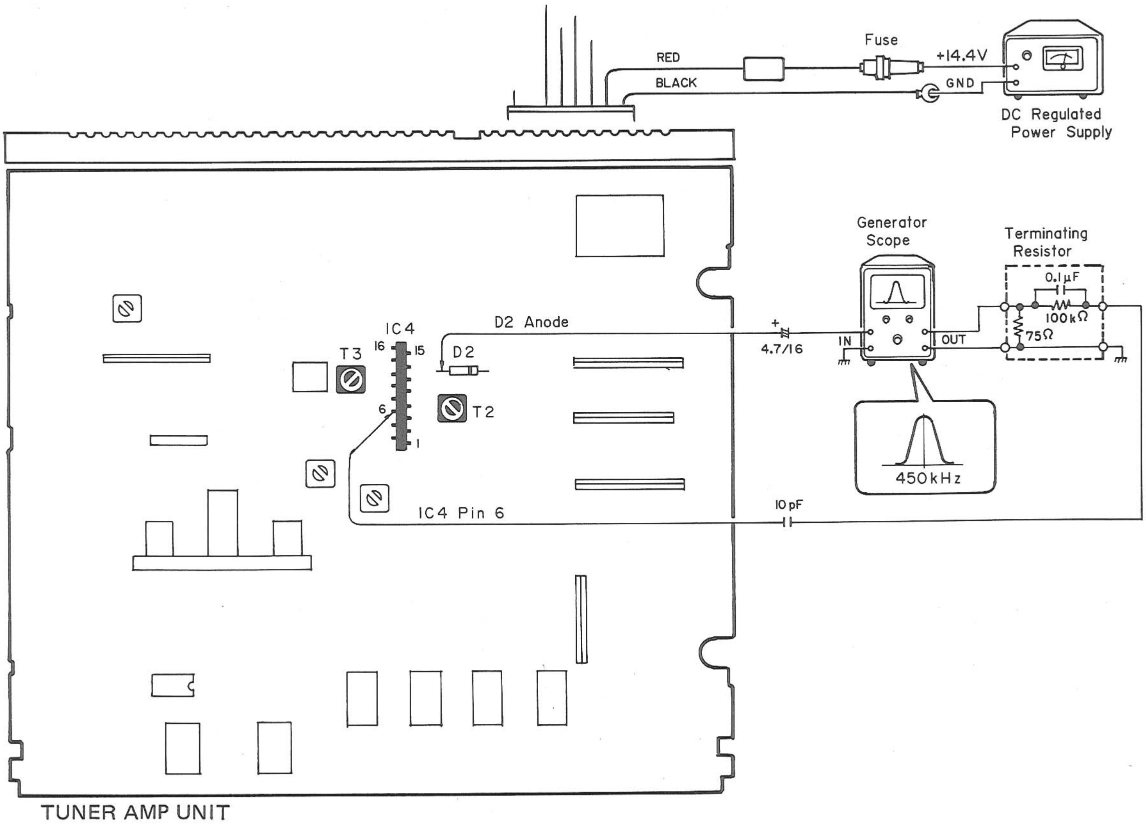

RED
BLACK
Fuse
+14.4V
GND
DC Regulated Power Supply
Generator Scope
Terminating Resistor
0.1μF
100kΩ
75Ω
IN
OUT
4.7/16
D2 Anode
IC4
T3
16
15
D2
6
1
T2
450kHz
10pF
IC4 Pin 6
TUNER AMP UNIT

Fig. 29

● To Adjust

1. Set Generator Scope as follows:
   Frequency ccentering on sweep 450kHz
   Input level 0.3Vp-p/cm
   Output level .... 3mV~10mV
2. Turn the cores of T2, T3 and adjust so that U-curve will be at maximum amplitude and best symmetry.

7.7 AM (MW) TRACKING ADJUSTMENT

● Connection Diagram

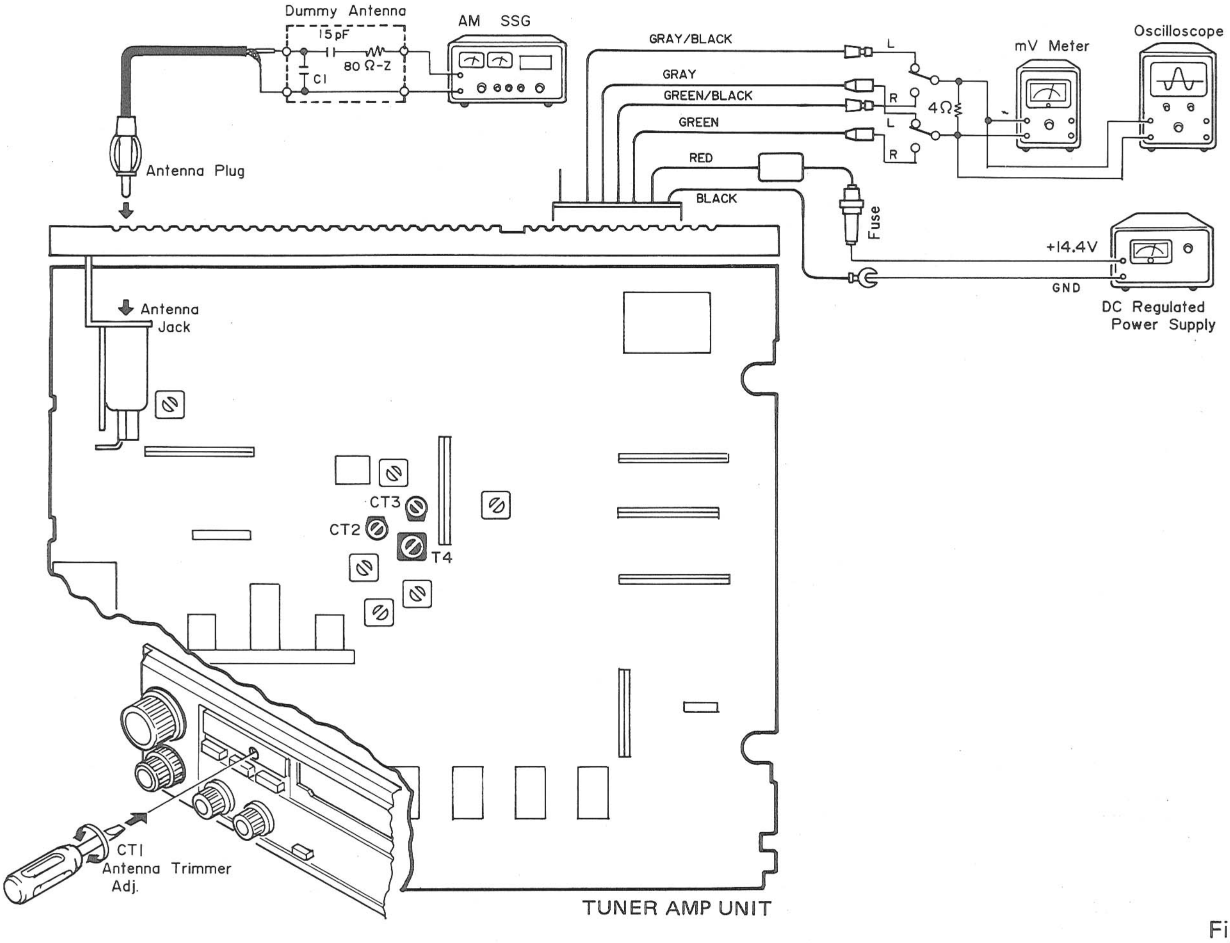

Dummy Antenna
15pF
80 Ω-Z
C1
AM SSG
Antenna Plug
GRAY/BLACK
GRAY
GREEN/BLACK
GREEN
RED
BLACK
L
R
L
R
4Ω
mV Meter
Oscilloscope
Fuse
+14.4V
GND
DC Regulated
Power Supply
Antenna
Jack
CT3
CT2
T4
CT1
Antenna Trimmer
Adj.
TUNER AMP UNIT

Fig. 30

NOTICE:
Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.
Z: Output impedance of the SSG.

● To Adjust

SSG Frequency	Pointer Position	Adjustment Point	Note
1. 515kHz (400Hz, 30% modulation), output level 20 dB (μV)	Minimum	T4	515kHz can be received
2. 1,650kHz (400Hz, 30% modulation), output level 20 dB (μV)	Maximum	CT2	1,650kHz can be received
3 Repeat (1) and (2) alternately and adjust so that broadcast can be received at the frequency between 515kHz and 1,650kHz.			
4. 1,400kHz (400Hz, 30% modulation), output level 20 dB (μV)	Tune to 1,400kHz	CT1, CT3	mV Meter at maximum

7.7 LW TRACKING ADJUSTMENT (KPH-4830/EW)

● Connection Diagram

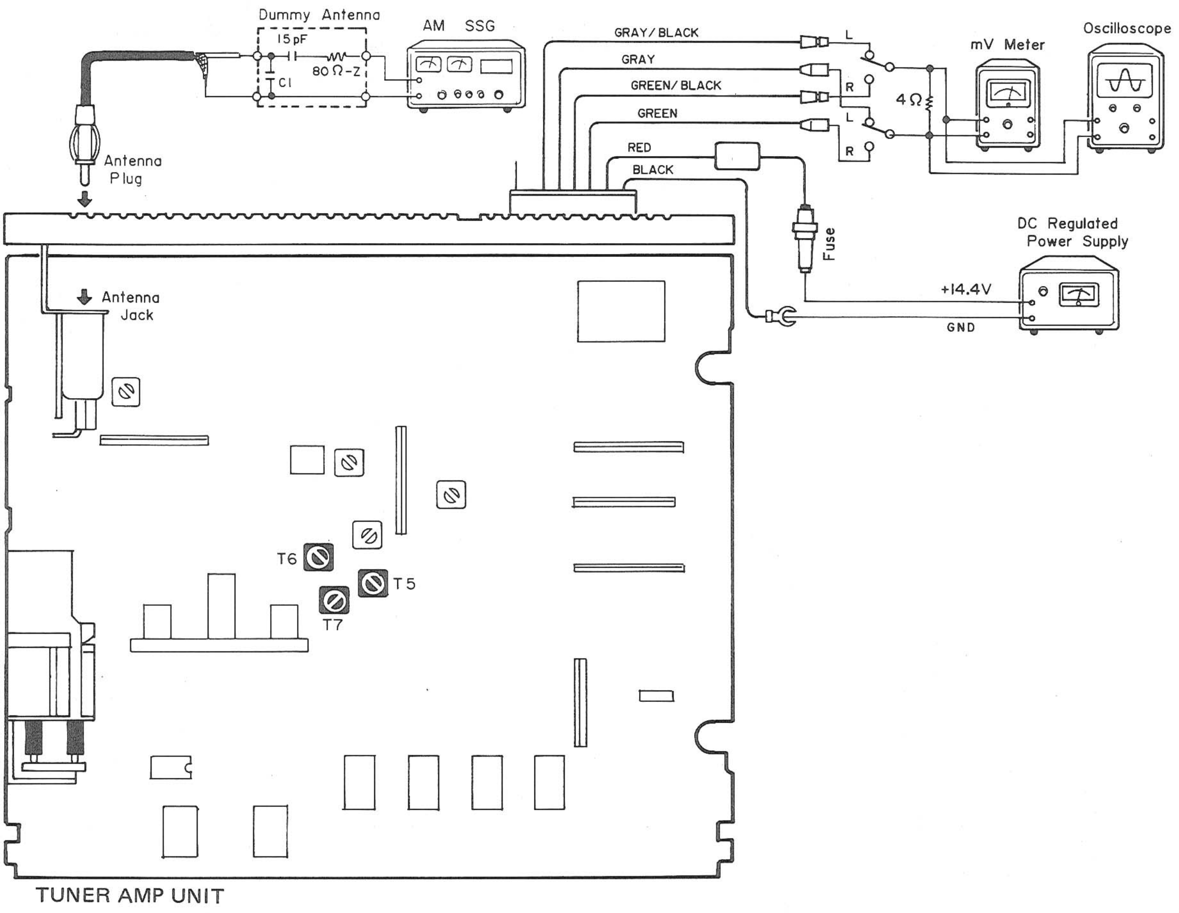

Dummy Antenna
15pF
80Ω-Z
C1
AM SSG
GRAY/BLACK
GRAY
GREEN/BLACK
GREEN
RED
BLACK
L
R
L
R
4Ω
mV Meter
Oscilloscope
Antenna Plug
Fuse
DC Regulated Power Supply
+14.4V
GND
Antenna Jack
T6
T5
T7
TUNER AMP UNIT

Fig. 31

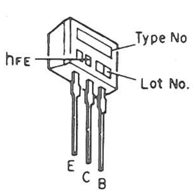
NOTICE:
Select C1 so that total capacity of 80pF is attained from the direction of the received jack.
Z: Output impedance of the SSG.

● To Adjust

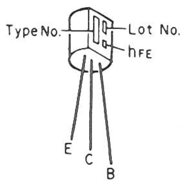
SSF Frequency	Pointer Position	Adjustment Point	Note
1. 140kHz (400Hz, 30% modulation), output level 40 dB (μV)	Minimum	T5	140kHz can be received
2. 290kHz (400Hz, 30% modulation), output level 40 dB (μV)	Maximum	T7	290kHz can be received
3. Repeat (1) and (2) alternately and adjust so that broadcast can be received at the frequency between 140kHz and 290kHz.			
4. 215kHz (400Hz, 30% modulation), output level 40 dB (μV)	Tune to 215kHz	T6	mV Meter at maximum

● ICs and Transistors

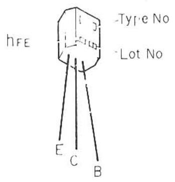
2SC2786


Type No
hFE
Lot No.
E
C
B

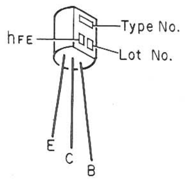
2SC1674


Type No.
Lot No.
hFE
E
C
B

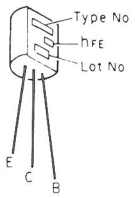
2SC2458
2SA1048


Type No
hFE
Lot No
E
C
B

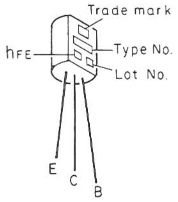
2SC1740S
2SC2060


Type No.
hFE
Lot No.
E
C
B

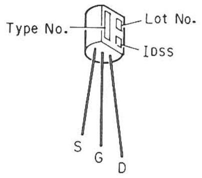
2SD667


Type No
hFE
Lot No
E
C
B

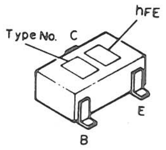
2SC2634NC


Trade mark
hFE
Type No.
Lot No.
E
C
B

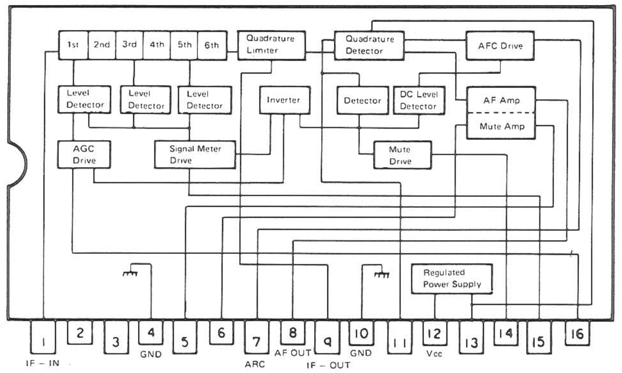
2SK30A


Type No.
Lot No.
IDSS
S
G
D

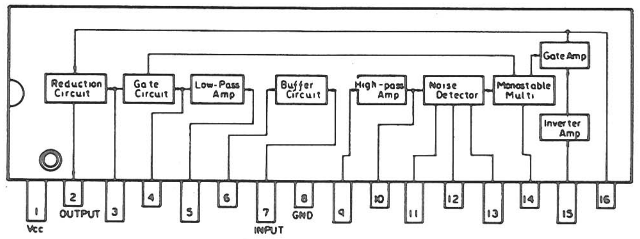
Part No.	Indication (Type No., hFE)
2SC2712-LG	LG
2SC2712-LL	LL
2SC2712-LY	LY
2SB709-AQ	AQ
2SB709-AR	AR
2SB709-AS	AS
2SD601-YQ	YQ
2SD601-YR	YR
2SD601-YS	YS


Type No.
hFE
C
E
B

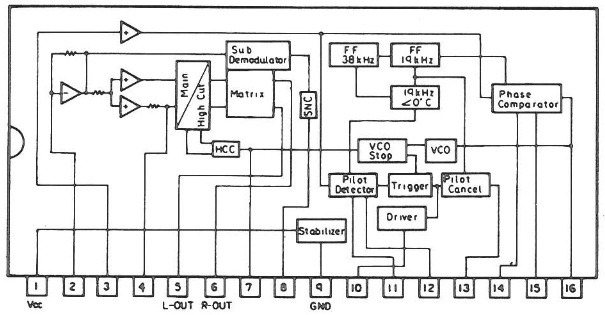
LA1140B


1st
2nd
3rd
4th
5th
6th
Quadrature Limiter
Quadrature Detector
AFC Drive
Level Detector
Level Detector
Level Detector
Inverter
Detector
DC Level Detector
AF Amp
Mute Amp
AGC Drive
Signal Meter Drive
Mute Drive
Regulated Power Supply
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
IF – IN
GND
ARC
AF OUT
IF – OUT
GND
Vcc

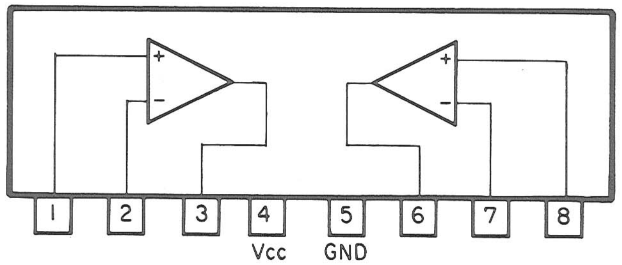
LA2110


Reduction Circuit
Gate Circuit
Low-Pass Amp
Buffer Circuit
High-pass Amp
Noise Detector
Monostable Multi
Gate Amp
Inverter Amp
1
Vcc
2
OUTPUT
3
4
5
6
7
INPUT
8
GND
9
10
11
12
13
14
15
16

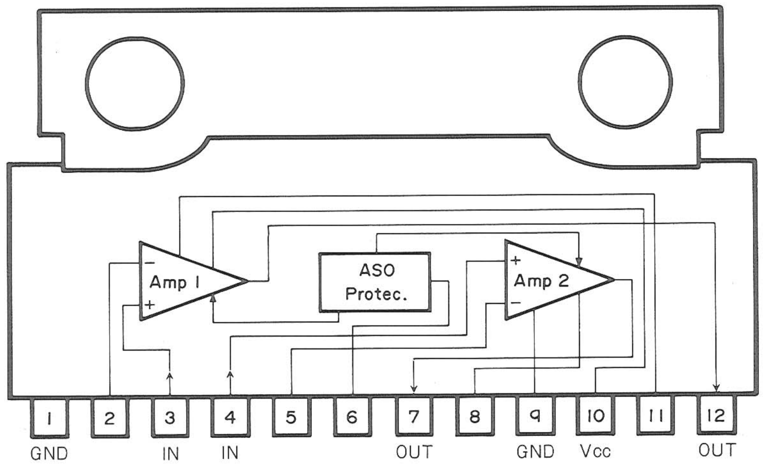
LA3376P


Sub Demodulator
Main
High Cut
Matrix
SNC
HCC
FF 38kHz
FF 19kHz
19kHz ∠0°C
Phase Comparator
VCO Stop
VCO
Pilot Detector
Trigger
Pilot Cancel
Driver
Stabilizer
1
Vcc
2
3
4
5
L-OUT
6
R-OUT
7
8
9
GND
10
11
12
13
14
15
16

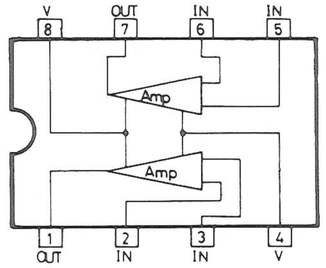
MB3106M


+
–
+
–
1
2
3
4
Vcc
5
GND
6
7
8

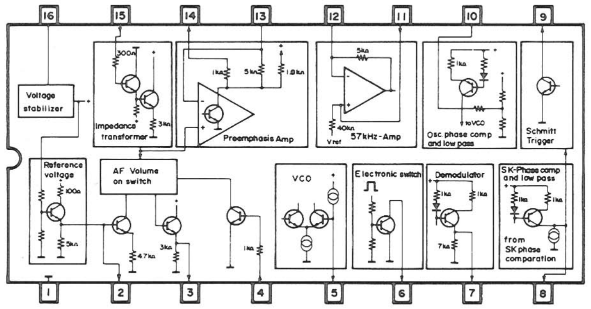
HA13001P


Amp 1
ASO Protec.
Amp 2
1
GND
2
3
IN
4
IN
5
6
7
OUT
8
9
GND
10
Vcc
11
12
OUT

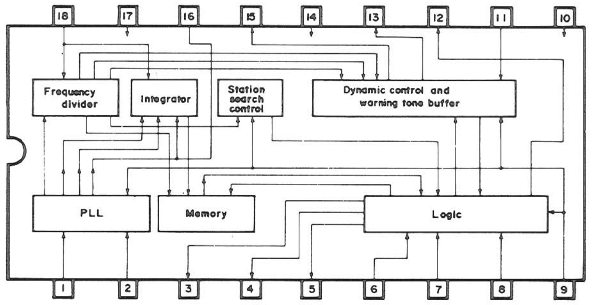
TA75558P


V
8
OUT
7
IN
6
IN
5
Amp
Amp
1
OUT
2
IN
3
IN
4
V

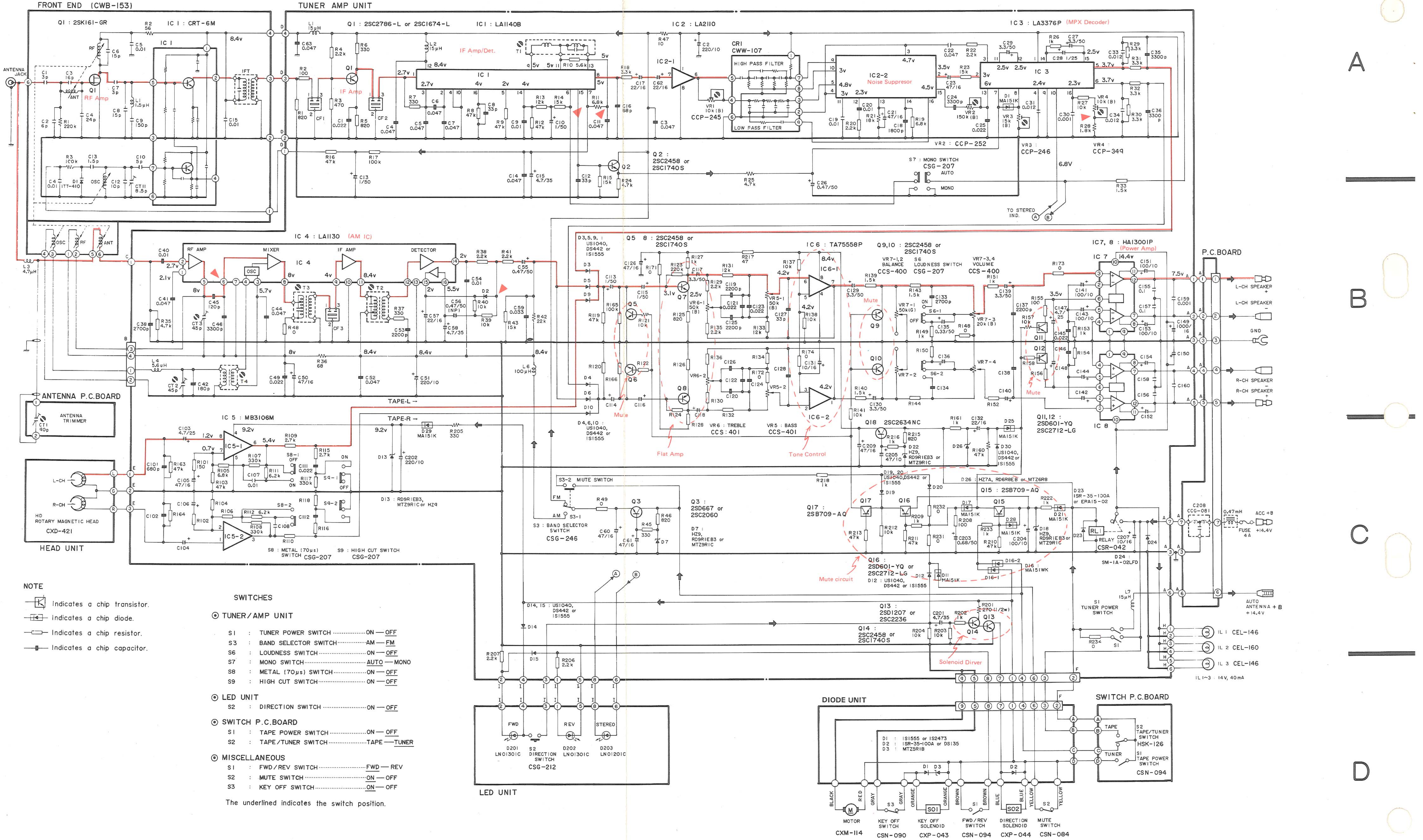
S0280


Voltage stabilizer
Impedance transformer
300Ω
3kΩ
Preemphasis Amp
1kΩ
5kΩ
1.8kΩ
57kHz-Amp
5kΩ
40kΩ
Vref
Osc. phase comp and low pass
1kΩ
to VCO
Schmitt Trigger
Reference voltage
100Ω
5kΩ
AF Volume on switch
4.7kΩ
3kΩ
1kΩ
VCO
Electronic switch
Demodulator
1kΩ
1kΩ
7kΩ
SK-Phase comp and low pass
1kΩ
1kΩ
from SK phase comparation
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

S551


Frequency divider
Integrator
Station search control
Dynamic control and warning tone buffer
PLL
Memory
Logic
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

8. SCHEMATIC CIRCUIT DIAGRAM (KPH-4800/EW,ES)



1
2
3
4
5
6
A
B
C
D
FRONT END (CWB-153)
Q1 : 2SK161-GR
IC1 : CRT-6M
ANTENNA JACK
RF Amp
IFT
8.4v
TUNER AMP UNIT
Q1 : 2SC2786-L or 2SC1674-L
IC1 : LA1140B
IF Amp/Det.
IF Amp
CF1
CF2
T1
IC2 : LA2110
IC2-1
CR1 CWW-107
HIGH PASS FILTER
LOW PASS FILTER
IC2-2 Noise Suppresor
VR1 10k(B) CCP-245
IC3 : LA3376P (MPX Decoder)
IC 3
VR2 : CCP-252
VR3 CCP-246
VR4 CCP-349
Q2 : 2SC2458 or 2SC1740S
S7 : MONO SWITCH CSG-207
AUTO
MONO
TO STEREO IND.
6.8V
IC 4 : LA1130 (AM IC)
RF AMP
MIXER
IF AMP
DETECTOR
OSC
TAPE-L
TAPE-R
ANTENNA P.C.BOARD
ANTENNA TRIMMER
IC 5 : MB3106M
IC5-1
IC5-2
S8-1
S8-2
S9-1
S9-2
S8 : METAL (70μs) SWITCH CSG-207
S9 : HIGH CUT SWITCH CSG-207
D13 : RD9R1EB3, MTZ9R1C or HZ9
L-CH
R-CH
HD ROTARY MAGNETIC HEAD CXD-421
HEAD UNIT
D3,5,9 : US1040, DS442 or IS1555
Q5, 8 : 2SC2458 or 2SC1740S
IC6 : TA75558P
IC6-1
IC6-2
Q9,10 : 2SC2458 or 2SC1740S
VR7-1,2 BALANCE CCS-400
S6 LOUDNESS SWITCH CSG-207
VR7-3,4 VOLUME CCS-400
VR6 : TREBLE CCS:401
VR5 : BASS CCS-401
Flat Amp
Tone Control
Mute
D4,6,10 : US1040, DS442 or IS1555
Q18 2SC2634NC
IC7, 8 : HA1300IP (Power Amp)
IC 7
IC 8
Q11,12 : 2SD601-YQ 2SC2712-LG
P.C.BOARD
L-CH SPEAKER
R-CH SPEAKER
GND
S3-2 MUTE SWITCH
S3 : BAND SELECTOR SWITCH CSG-246
FM
AM
Q3 : 2SD667 or 2SC2060
D7 : HZ9, RD9R1EB3 or MTZ9R1C
D19, 20 : US1040, DS442 or IS1555
D26 : HZ7A, RD6R8EB or MTZ6R8
Q15 : 2SB709-AQ
Q17, 8 : 2SB709-AQ
Q16 : 2SD601-YQ or 2SC2712-LG
D12 : US1040, DS442 or IS1555
Mute circuit
D23 ISR-35-100A or ERA15-02
RELAY CSR-042
D24 : SM-1A-02LFD
ACC +B
FUSE 4A
+14.4V
AUTO ANTENNA +B +14.4V
D14, 15 : US1040, DS442 or IS1555
Q13 : 2SD1207 or 2SC2236
Q14 : 2SC2458 or 2SC1740S
Solenoid Dirver
S1 TUNER POWER SWITCH
IL1 CEL-146
IL2 CEL-160
IL3 CEL-146
IL1~3 14V, 40mA
LED UNIT
FWD
REV
STEREO
D201 LN01301C
S2 DIRECTION SWITCH CSG-212
D202 LN01301C
D203 LN01201C
DIODE UNIT
D1 : IS1555 or IS2473
D2 : ISR-35-100A or DS135
D3 : MTZ5R1B
SWITCH P.C.BOARD
TAPE
TUNER
S2 TAPE/TUNER SWITCH HSK-126
S1 TAPE POWER SWITCH CSN-094
BLACK
RED
GRAY
ORANGE
BROWN
BLUE
YELLOW
MOTOR CXM-114
S3 KEY OFF SWITCH CSN-090
SO1 KEY OFF SOLENOID CXP-043
S1 FWD/REV SWITCH CSN-094
SO2 DIRECTION SOLENOID CXP-044
S2 MUTE SWITCH CSN-084

NOTE

- Indicates a chip transistor.
- Indicates a chip diode.
- Indicates a chip resistor.
- Indicates a chip capacitor.

SWITCHES

◉ TUNER/AMP UNIT

S1 : TUNER POWER SWITCH .... ON — OFF
S3 : BAND SELECTOR SWITCH .... AM — FM
S6 : LOUDNESS SWITCH .... ON — OFF
S7 : MONO SWITCH .... AUTO — MONO
S8 : METAL (70μs) SWITCH .... ON — OFF
S9 : HIGH CUT SWITCH .... ON — OFF

◉ LED UNIT

S2 : DIRECTION SWITCH .... ON — OFF

◉ SWITCH P.C.BOARD

S1 : TAPE POWER SWITCH .... ON — OFF
S2 : TAPE/TUNER SWITCH .... TAPE — TUNER

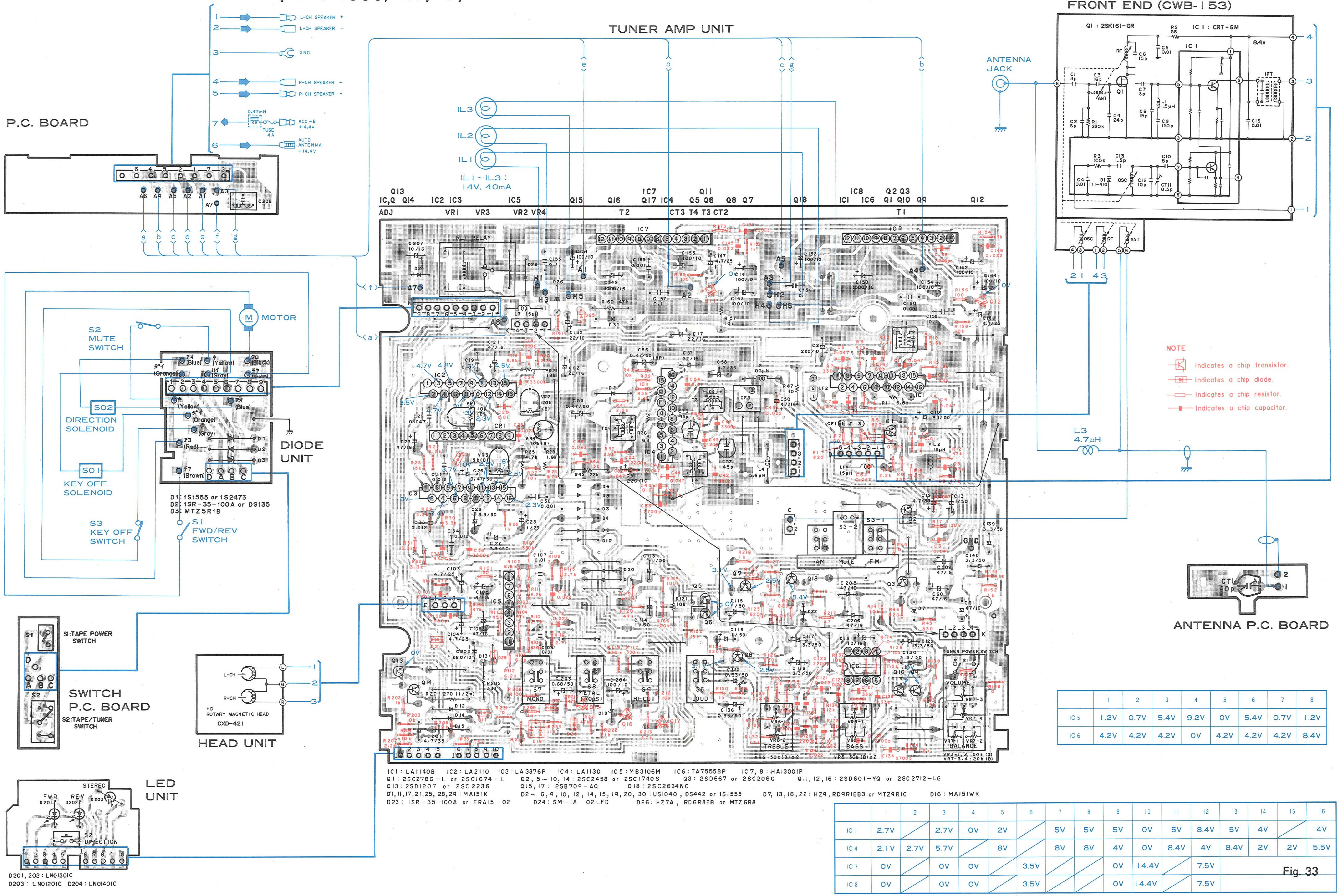
◉ MISCELLANEOUS

S1 : FWD/REV SWITCH .... FWD — REV
S2 : MUTE SWITCH .... ON — OFF
S3 : KEY OFF SWITCH .... ON — OFF

The underlined indicates the switch position.

Fig. 32

9. CONNECTION DIAGRAM (KPH-4800/EW,ES)



TUNER AMP UNIT
FRONT END (CWB-153)
Q1 : 2SK161-GR
IC1 : CRT-6M
ANTENNA JACK
P.C. BOARD
1 L-CH SPEAKER +
2 L-CH SPEAKER −
3 GND
4 R-CH SPEAKER −
5 R-CH SPEAKER +
7 ACC +B +14.4V
0.47mH
FUSE 4A
6 AUTO ANTENNA +14.4V
IL3
IL2
IL1
IL1 ~ IL3 : 14V, 40mA
MOTOR
S2 MUTE SWITCH
SO2 DIRECTION SOLENOID
SO1 KEY OFF SOLENOID
S3 KEY OFF SWITCH
S1 FWD/REV SWITCH
DIODE UNIT
D1 : 1S1555 or 1S2473
D2 : 1SR-35-100A or DS135
D3 : MTZ5R1B
SWITCH P.C. BOARD
S1: TAPE POWER SWITCH
S2: TAPE/TUNER SWITCH
HEAD UNIT
L-CH
R-CH
HD ROTARY MAGNETIC HEAD CXD-421
LED UNIT
STEREO
FWD
REV
D201
D202
D203
D204
S2 DIRECTION
D201, 202 : LN01301C
D203 : LN01201C D204 : LN01401C
RL1 RELAY
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
VR1
VR2
VR3
VR4
T1
T2
T3
T4
CT1
CT2
CT3
CF1
CF2
CF3
S3-1
S3-2
AM
MUTE
FM
GND
S7 MONO
S8 METAL (70μS)
S9 HI-CUT
S6 LOUD
VR6-1
VR6-2
TREBLE
VR5-1
VR5-2
BASS
VOLUME
VR7-1
VR7-2
VR7-3
VR7-4
BALANCE
TUNER POWER SWITCH
VR6 50k(B)×2
VR5 50k(B)×2
VR7-1, 2 : 50k (G)
VR7-3, 4 : 20k (B)
L3 4.7μH
ANTENNA P.C. BOARD
CT1 40p
NOTE
Indicates a chip transistor.
Indicates a chip diode.
Indicates a chip resistor.
Indicates a chip capacitor.

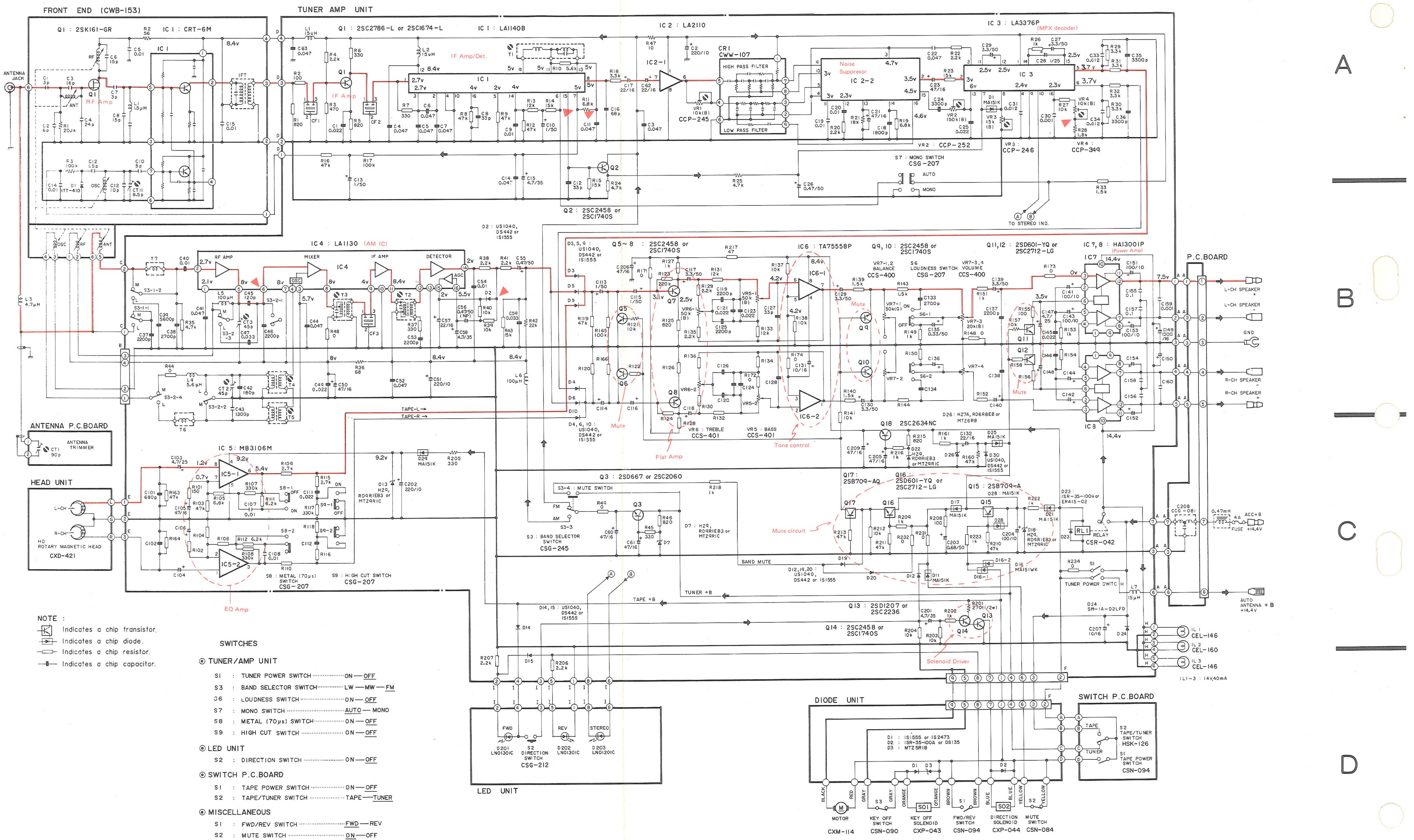
IC1 : LA1140B IC2 : LA2110 IC3 : LA3376P IC4 : LA1130 IC5 : MB3106M IC6 : TA75558P IC7, 8 : HA13001P
Q1 : 2SC2786−L or 2SC1674−L Q2, 5 ~ 10, 14 : 2SC2458 or 2SC1740S Q3 : 2SD667 or 2SC2060 Q11, 12, 16 : 2SD601−YQ or 2SC2712−LG
Q13 : 2SD1207 or 2SC2236 Q15, 17 : 2SB709−AQ Q18 : 2SC2634NC
D1, 11, 17, 21, 25, 28, 29 : MA151K D2 ~ 6, 9, 10, 12, 14, 15, 19, 20, 30 : US1040, DS442 or 1S1555 D7, 13, 18, 22 : HZ9, RD9R1EB3 or MTZ9R1C D16 : MA151WK
D23 : 1SR−35−100A or ERA15−02 D24 : SM−1A−02LFD D26 : HZ7A, RD6R8EB or MTZ6R8

	1	2	3	4	5	6	7	8
IC5	1.2V	0.7V	5.4V	9.2V	0V	5.4V	0.7V	1.2V
IC6	4.2V	4.2V	4.2V	0V	4.2V	4.2V	4.2V	8.4V

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC1	2.7V		2.7V	0V	2V		5V	5V	5V	0V	5V	8.4V	5V	4V		4V
IC4	2.1V	2.7V	5.7V		8V		8V	8V	4V	0V	8.4V	4V	8.4V	2V	2V	5.5V
IC7	0V		0V	0V		3.5V			0V	14.4V		7.5V				
IC8	0V		0V	0V		3.5V			0V	14.4V		7.5V				

Fig. 33

10. SCHEMATIC CIRCUIT DIAGRAM (KPH-4830/EW)


FRONT END (CWB-153)
Q1 : 2SK161-GR
IC1 : CRT-6M
ANTENNA JACK
RF Amp
OSC
ANT
TUNER AMP UNIT
Q1 : 2SC2786-L or 2SC1674-L
IC1 : LA1140B
IF Amp/Det.
IF Amp
IC2 : LA2110
CR1 CWW-107
HIGH PASS FILTER
LOW PASS FILTER
VR1 CCP-245
IC2-2
Noise Suppresor
IC3 : LA3376P
(MPX decoder)
VR2 : CCP-252
VR3 : CCP-246
VR4 : CCP-349
S7 : MONO SWITCH CSG-207
AUTO
MONO
TO STEREO IND.
Q2 : 2SC2458 or 2SC1740S
D2 : US1040, DS442 or IS1555
IC4 : LA1130 (AM IC)
RF AMP
MIXER
IF AMP
DETECTOR
AGC
ANTENNA P.C.BOARD
ANTENNA TRIMMER
HEAD UNIT
HD ROTARY MAGNETIC HEAD CXD-421
L-CH
R-CH
IC5 : MB3106M
IC5-1
IC5-2
EQ Amp
S8 : METAL (70μs) SWITCH CSG-207
S9 : HIGH CUT SWITCH CSG-207
TAPE-L
TAPE-R
D3, 5, 9 : US1040, DS442 or IS1555
Q5~8 : 2SC2458 or 2SC1740S
IC6 : TA75558P
IC6-1
IC6-2
Flat Amp
Mute
Tone control
VR6 : TREBLE CCS-401
VR5 : BASS CCS-401
Q9, 10 : 2SC2458 or 2SC1740S
VR7-1,2 BALANCE CCS-400
S6 LOUDNESS SWITCH CSG-207
VR7-3,4 VOLUME CCS-400
Q11, 12 : 2SD601-YQ or 2SC2712-LG
IC7, 8 : HA13001P (Power Amp)
IC7
IC8
Q18 2SC2634NC
D26 : HZ7A, RD6R8EB or MTZ6R8
Q3 : 2SD667 or 2SC2060
S3-4 : MUTE SWITCH
FM
AM
S3 : BAND SELECTOR SWITCH CSG-245
D7 : HZ9, RD9R1EB3 or MTZ9R1C
Q17 : 2SB709-AQ
Q16 : 2SD601-YQ or 2SC2712-LG
Q15 : 2SB709-A
D28 : MA151K
Mute circuit
D23 : 1SR-35-100A or ERA15-02
RL1
RELAY CSR-042
BAND MUTE
D12, 19, 20 : US1040, DS442 or IS1555
TUNER +B
TAPE +B
D14, 15 : US1040, DS442 or IS1555
Q13 : 2SD1207 or 2SC2236
Q14 : 2SC2458 or 2SC1740S
Solenoid Driver
D24 SM-1A-02LFD
S1 TUNER POWER SWITCH
P.C.BOARD
L-CH SPEAKER
R-CH SPEAKER
GND
FUSE 4A
ACC+B +14.4V
AUTO ANTENNA +B +14.4V
IL1 CEL-146
IL2 CEL-160
IL3 CEL-146
IL1~3 : 14V, 40mA
LED UNIT
FWD
REV
STEREO
D201 LN0130IC
S2 DIRECTION SWITCH CSG-212
D202 LN0130IC
D203 LN0120IC
DIODE UNIT
D1 : IS1555 or IS2473
D2 : ISR-35-100A or DS135
D3 : MTZ5R1B
MOTOR CXM-114
KEY OFF SWITCH CSN-090
KEY OFF SOLENOID CXP-043
FWD/REV SWITCH CSN-094
DIRECTION SOLENOID CXP-044
MUTE SWITCH CSN-084
SWITCH P.C.BOARD
S2 TAPE/TUNER SWITCH HSK-126
S1 TAPE POWER SWITCH CSN-094
TAPE
TUNER
BLACK
RED
GRAY
ORANGE
BROWN
BLUE
YELLOW
1
2
3
4
5
6
A
B
C
D

NOTE :

- Indicates a chip transistor.
- Indicates a chip diode.
- Indicates a chip resistor.
- Indicates a chip capacitor.

SWITCHES

◎ TUNER/AMP UNIT

S1	TUNER POWER SWITCH	ON—OFF
S3	BAND SELECTOR SWITCH	LW—MW—FM
S6	LOUDNESS SWITCH	ON—OFF
S7	MONO SWITCH	AUTO—MONO
S8	METAL (70μs) SWITCH	ON—OFF
S9	HIGH CUT SWITCH	ON—OFF

◎ LED UNIT

S2	DIRECTION SWITCH	ON—OFF

◎ SWITCH P.C.BOARD

S1	TAPE POWER SWITCH	ON—OFF
S2	TAPE/TUNER SWITCH	TAPE—TUNER

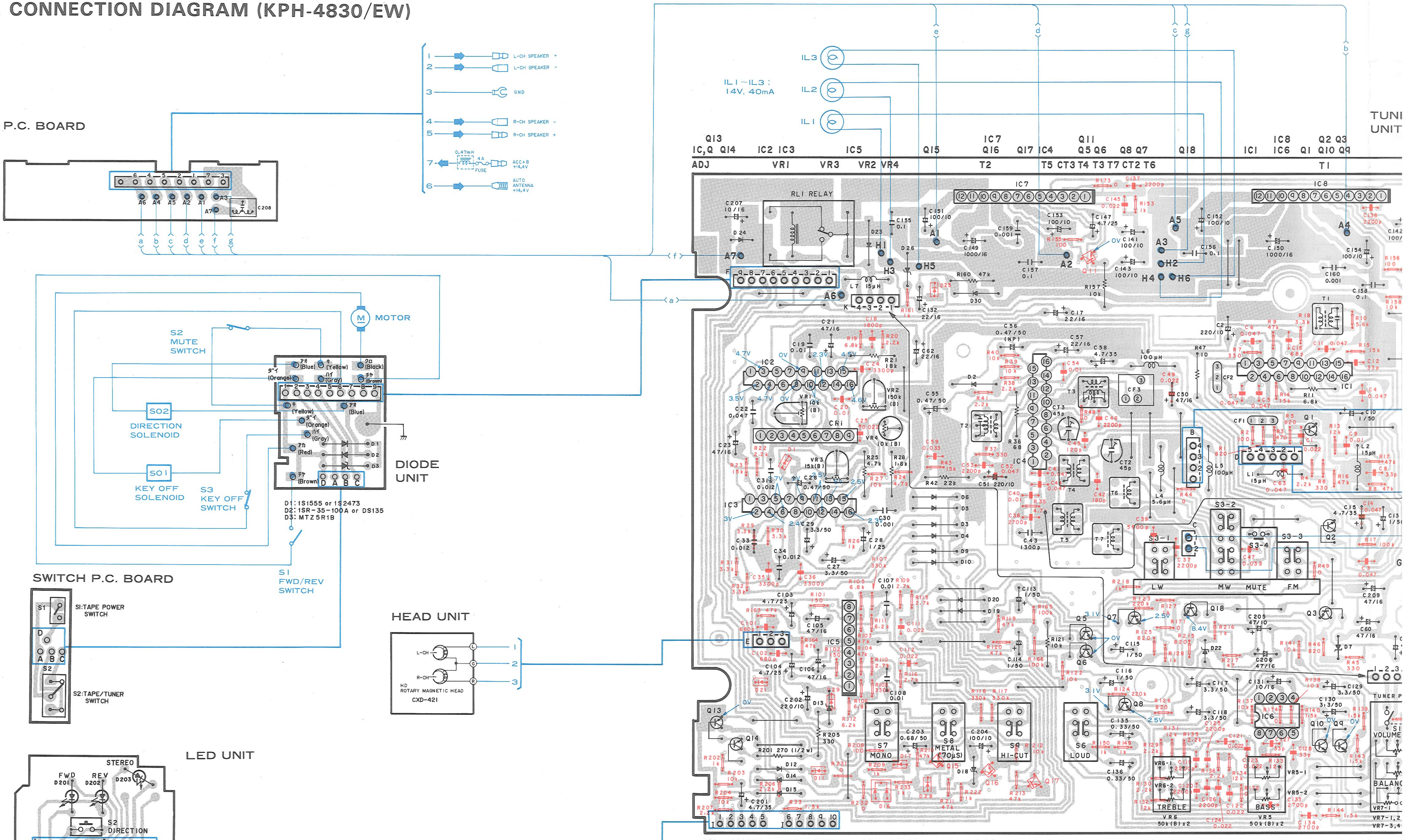
◎ MISCELLANEOUS

S1	FWD/REV SWITCH	FWD—REV
S2	MUTE SWITCH	ON—OFF
S3	KEY OFF SWITCH	ON—OFF

The underlined indicates the switch position.

Fig. 34

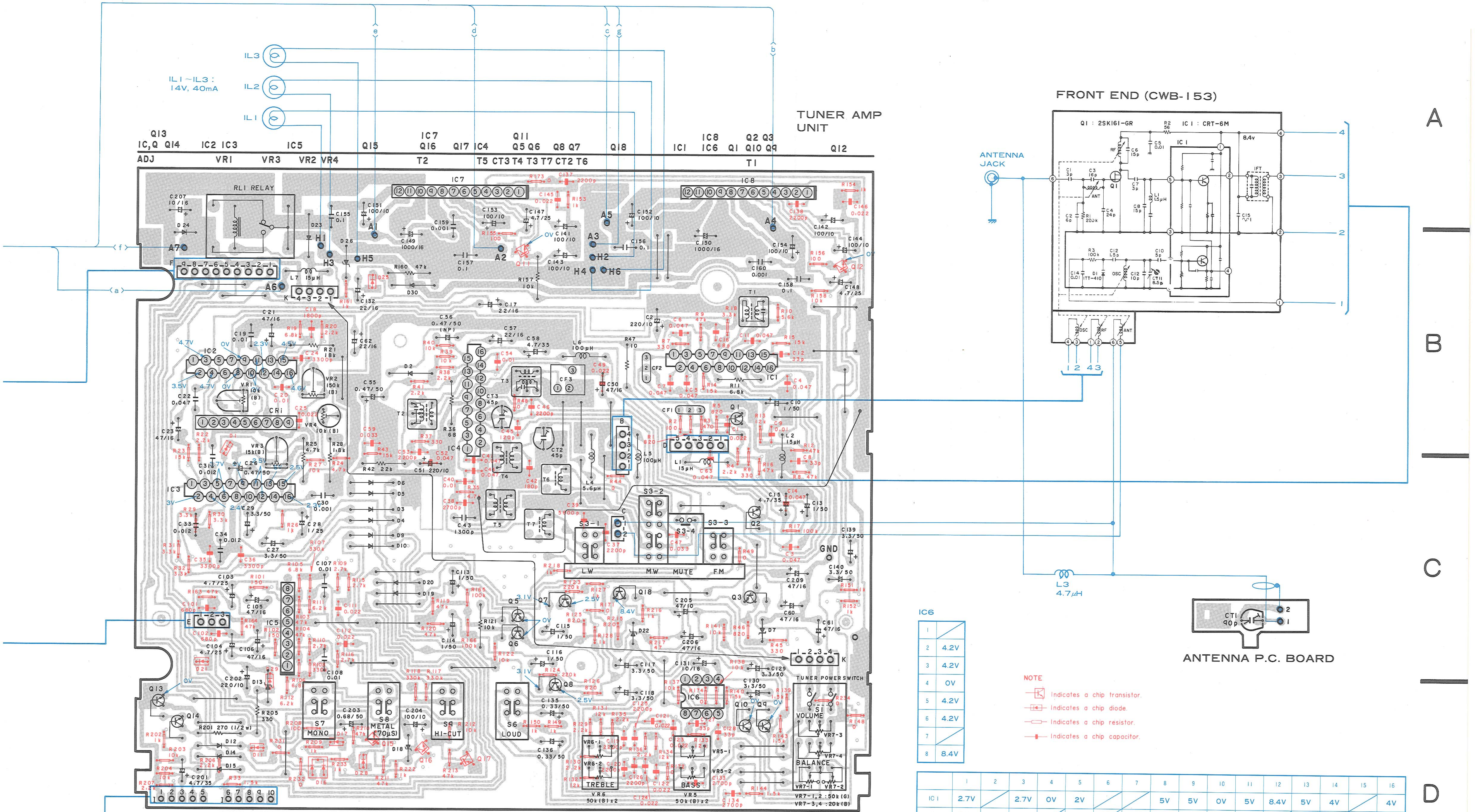
11. CONNECTION DIAGRAM (KPH-4830/EW)


1
2
3
4
5
6
A
B
C
D
P.C. BOARD
L-CH SPEAKER +
L-CH SPEAKER −
GND
R-CH SPEAKER −
R-CH SPEAKER +
0.47mH
4A
FUSE
ACC+B +14.4V
AUTO ANTENNA +14.4V
IL1~IL3 : 14V, 40mA
IL1
IL2
IL3
MOTOR
S2 MUTE SWITCH
SO2 DIRECTION SOLENOID
SO1 KEY OFF SOLENOID
S3 KEY OFF SWITCH
S1 FWD/REV SWITCH
DIODE UNIT
D1 : 1S1555 or 1S2473
D2 : 1SR-35-100A or DS135
D3 : MTZ5R1B
SWITCH P.C. BOARD
S1:TAPE POWER SWITCH
S2:TAPE/TUNER SWITCH
HEAD UNIT
HD ROTARY MAGNETIC HEAD CXD-421
L-CH
R-CH
LED UNIT
STEREO
FWD D201
REV D202
D203
S2 DIRECTION
RL1 RELAY
TUNER UNIT
IC7
IC8
LW
MW
MUTE
FM
MONO
METAL (70μS)
HI-CUT
LOUD
TREBLE
BASS
VOLUME
BALANCE

D201, 202 : LN01301C
D203 : LN01201C D204 : LN01401C

IC1 : LA1140B IC2 : LA2110 IC3 : LA3376P IC4 : LA1130 IC5 : MB3106M IC6 : TA75558P IC7, 8 : HA13001P
Q1 : 2SC2786−L or 2SC1674−L Q2, 5～10, 14 : 2SC2458 or 2SC1740S Q3 : 2SD667 or 2SC2060 Q11, 12, 16 : 2SD601−YQ or 2SC2712−LG
Q13 : 2SD1207 or 2SC2236 Q15, 17 : 2SB709 − AQ Q18 : 2SC2634NC

D1, 11, 17, 21, 25, 28, 29 : MA151K D2～6, 9, 10, 12, 14, 15, 19, 20, 30 : US1040, DS442 or 1S1555 D7, 13, 18, 22 : HZ9, RD9R1EB3 or MTZ9R1C D16 : MA
D23 : 1SR − 35− 100A or ERA15−02 D24 : SM− 1A−02LFD D26 : HZ7A, RD6R8EB or MTZ6R8


4
5
6
7
8
9
A
B
C
D
IL1~IL3 :
14V, 40mA
IL3
IL2
IL1
TUNER AMP
UNIT
Q13
IC,Q Q14
IC2 IC3
IC5
Q15
IC7
Q16
Q17 IC4
Q11
Q5 Q6
Q8 Q7
Q18
IC1
IC8
IC6
Q1
Q2 Q3
Q10 Q9
Q12
ADJ
VR1
VR3
VR2 VR4
T2
T5 CT3 T4 T3 T7 CT2 T6
T1
RL1 RELAY
A1
A2
A3
A4
A5
A6
A7
H1
H2
H3
H4
H5
H6
S3-1
S3-2
S3-3
S3-4
LW
MW
MUTE
FM
GND
S7
MONO
S8
METAL
(70μS)
S9
HI-CUT
S6
LOUD
TREBLE
VR6
50k(B)x2
BASS
VR5
50k(B)x2
TUNER POWER SWITCH
S1
VOLUME
BALANCE
VR7-1,2 : 50k(G)
VR7-3,4 : 20k(B)
FRONT END (CWB-153)
Q1 : 2SK161-GR
IC1 : CRT-6M
ANTENNA
JACK
L3
4.7μH
CT1
90p
ANTENNA P.C. BOARD

IC1 : LA1140B IC2 : LA2110 IC3 : LA3376P IC4 : LA1130 IC5 : MB3106M IC6 : TA75558P IC7, 8 : HA13001P

Q1 : 2SC2786-L or 2SC1674-L Q2, 5~10, 14 : 2SC2458 or 2SC1740S Q3 : 2SD667 or 2SC2060 Q11, 12, 16 : 2SD601-YQ or 2SC2712-LG

Q13 : 2SD1207 or 2SC2236 Q15, 17 : 2SB709-AQ Q18 : 2SC2634NC

D1, 11, 17, 21, 25, 28, 29 : MA151K D2~6, 9, 10, 12, 14, 15, 19, 20, 30 : US1040, DS442 or 1S1555 D7, 13, 18, 22 : HZ9, RD9RIEB3 or MTZ9RIC D16 : MA151WK

D23 : ISR-35-100A or ERA15-02 D24 : SM-1A-02LFD D26 : HZ7A, RD6R8EB or MTZ6R8

IC6

1	
2	4.2V
3	4.2V
4	0V
5	4.2V
6	4.2V
7	
8	8.4V

NOTE

-[K]- Indicates a chip transistor.

-[▶|]- Indicates a chip diode.

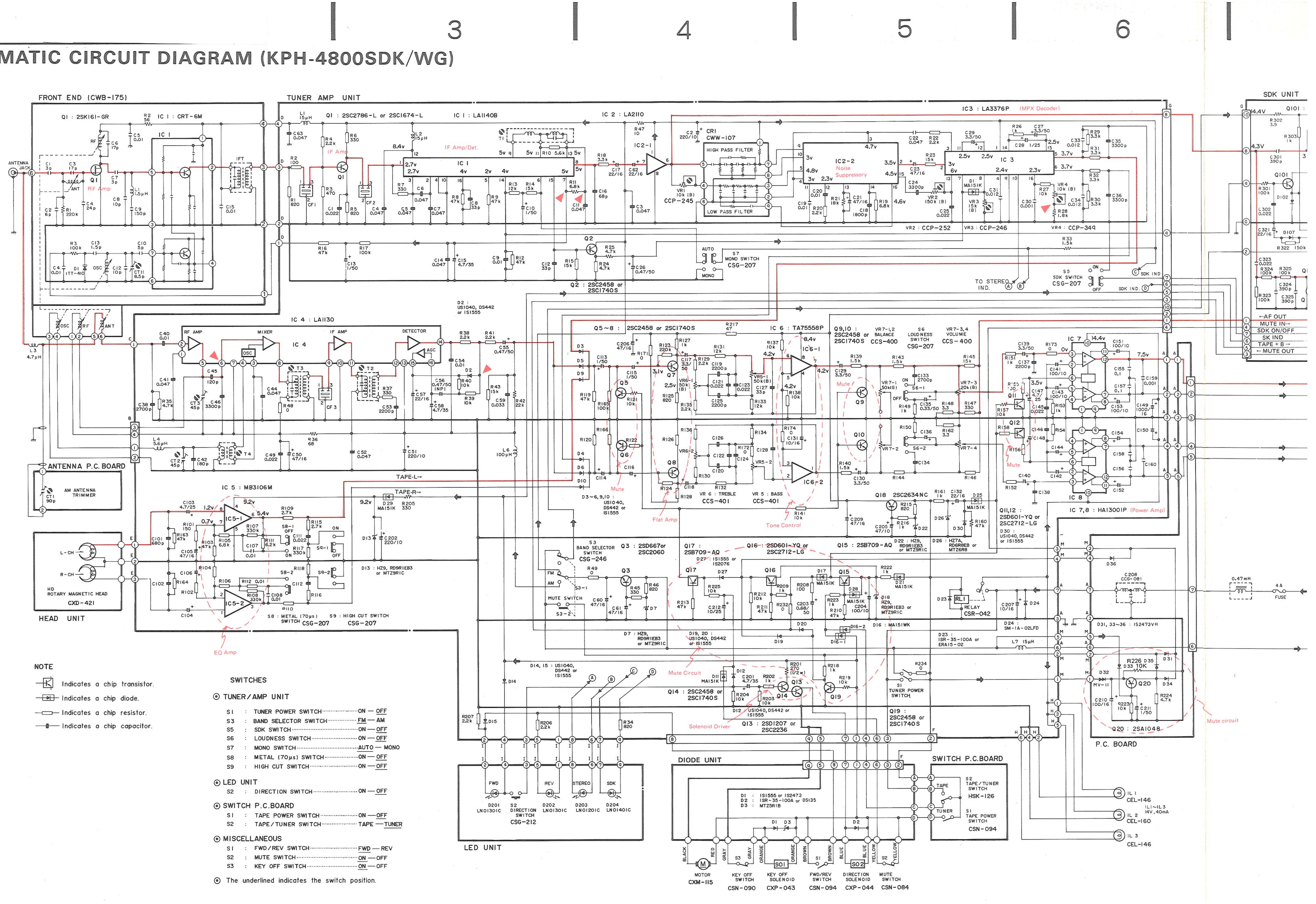
-▭- Indicates a chip resistor.

-▮- Indicates a chip capacitor.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC1	2.7V		2.7V	0V	2V			5V	5V	0V	5V	8.4V	5V	4V		4V
IC4	2.1V	2.7V	5.7V		8V		8V	8V	4V	0V	8.4V		8.4V	2V	2V	5.5V
IC7	0V			0V		3.5V			0V	14.4V		7.5V				
IC8	0V			0V		3.5V			0V	14.4V		7.5V				

Fig. 35

12. SCHEMATIC CIRCUIT DIAGRAM (KPH-4800SDK/WG)



FRONT END (CWB-175)
Q1 : 2SK161-GR
IC 1 : CRT-6M
RF Amp
ANTENNA JACK
TUNER AMP UNIT
Q1 : 2SC2786-L or 2SC1674-L
IC 1 : LA1140B
IF Amp
IF Amp/Det.
IC 2 : LA2110
IC3 : LA3376P (MPX Decoder)
CR1 CWW-107
HIGH PASS FILTER
LOW PASS FILTER
IC2-2 Noise Suppressor
VR1 CCP-245
VR2 : CCP-252
VR3 : CCP-246
VR4 : CCP-349
Q2 : 2SC2458 or 2SC1740S
S7 MONO SWITCH CSG-207
S5 SDK SWITCH CSG-207
TO STEREO IND.
SDK UNIT
IC 4 : LA1130
RF AMP
MIXER
IF AMP
DETECTOR
AGC
ANTENNA P.C. BOARD
AM ANTENNA TRIMMER
IC 5 : MB3106M
EQ Amp
HEAD UNIT
HD ROTARY MAGNETIC HEAD CXD-421
S8 : METAL (70μs) SWITCH CSG-207
S9 : HIGH CUT SWITCH CSG-207
Q5~8 : 2SC2458 or 2SC1740S
IC 6 : TA75558P
Flat Amp
Mute
Tone Control
VR 6 : TREBLE CCS-401
VR 5 : BASS CCS-401
Q9,10 : 2SC2458 or 2SC1740S
VR7-L2 BALANCE CCS-400
S6 LOUDNESS SWITCH CSG-207
VR7-3,4 VOLUME CCS-400
Q18 2SC2634NC
IC 7,8 : HA1301P (Power Amp)
Q11,12 : 2SD601-YQ or 2SC2712-LG
S3 BAND SELECTOR SWITCH CSG-246
Q3 : 2SD667or 2SC2060
Q17 : 2SB709-AQ
Q16 : 2SD601-YQ or 2SC2712-LG
Q15 : 2SB709-AQ
RELAY CSR-042
Mute Circuit
Solenoid Driver
Q14 : 2SC2458 or 2SC1740S
Q13 : 2SD1207 or 2SC2236
Q19 : 2SC2458 or 2SC1740S
S1 TUNER POWER SWITCH
Q20 : 2SA1048
Mute circuit
P.C. BOARD
LED UNIT
FWD
REV
STEREO
SDK
D201 LN01301C
S2 DIRECTION SWITCH CSG-212
D202 LN01301C
D203 LN01201C
D204 LN01401C
DIODE UNIT
D1 : IS1555 or IS2473
D2 : ISR-35-100A or DS135
D3 : MTZ5R1B
MOTOR CXM-115
KEY OFF SWITCH CSN-090
KEY OFF SOLENOID CXP-043
FWD/REV SWITCH CSN-094
DIRECTION SOLENOID CXP-044
MUTE SWITCH CSN-084
SWITCH P.C.BOARD
S2 TAPE/TUNER SWITCH HSK-126
S1 TAPE POWER SWITCH CSN-094
IL 1 CEL-146
IL 2 CEL-160
IL 3 CEL-146
IL1~IL3 14V, 40mA
0.47mH
4A FUSE
A
B
C
D
1
2
3
4
5
6

NOTE

- Indicates a chip transistor.
- Indicates a chip diode.
- Indicates a chip resistor.
- Indicates a chip capacitor.

SWITCHES

◉ TUNER/AMP UNIT

S1 : TUNER POWER SWITCH ··········· ON — [✓ OFF]
S3 : BAND SELECTOR SWITCH ··········· [✓ FM] — AM
S5 : SDK SWITCH ··········· ON — [✓ OFF]
S6 : LOUDNESS SWITCH ··········· ON — [✓ OFF]
S7 : MONO SWITCH ··········· [✓ AUTO] — MONO
S8 : METAL (70μs) SWITCH ··········· ON — [✓ OFF]
S9 : HIGH CUT SWITCH ··········· ON — [✓ OFF]

◉ LED UNIT

S2 : DIRECTION SWITCH ··········· ON — [✓ OFF]

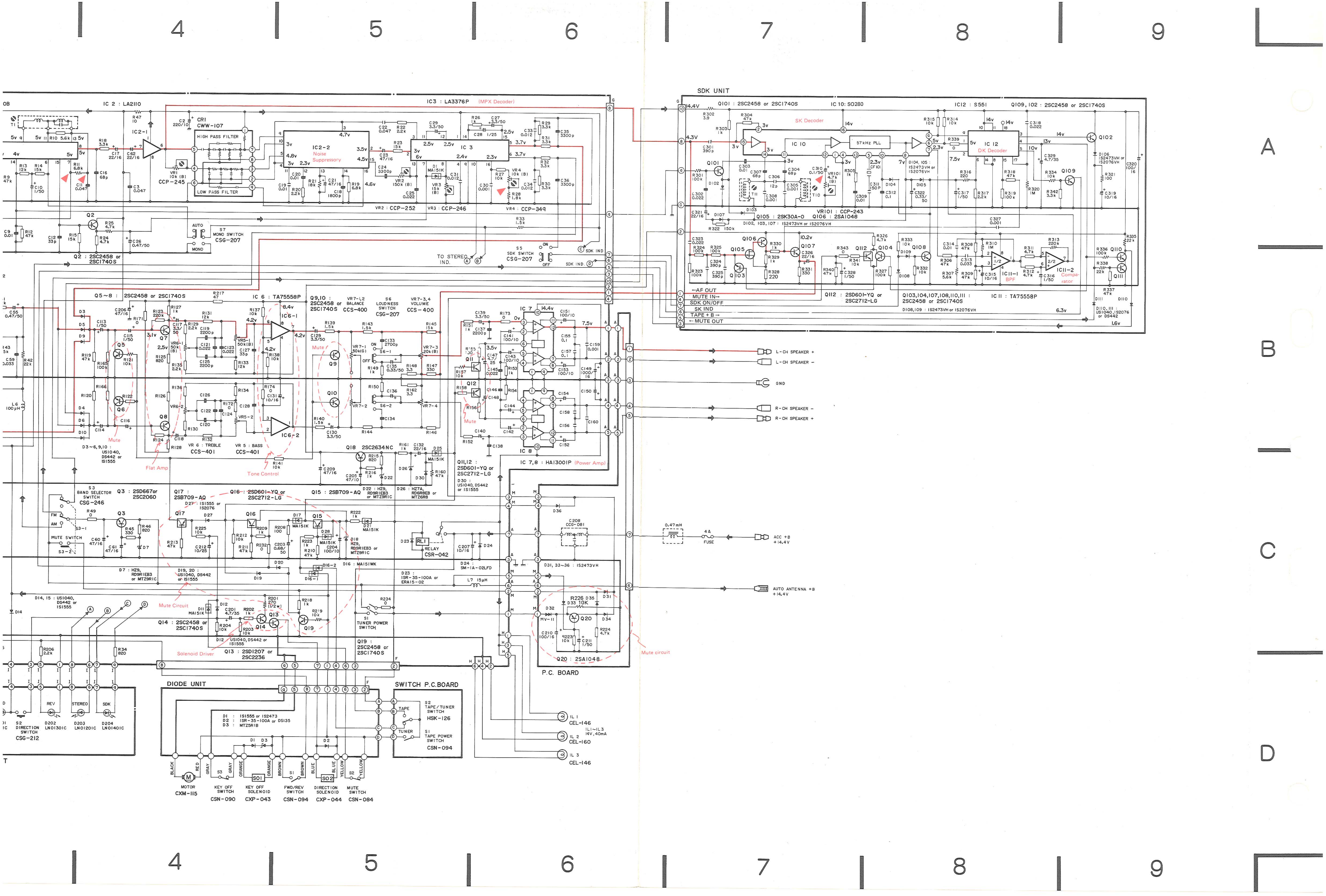
◉ SWITCH P.C.BOARD

S1 : TAPE POWER SWITCH ··········· ON — [✓ OFF]
S2 : TAPE/TUNER SWITCH ··········· TAPE — [✓ TUNER]

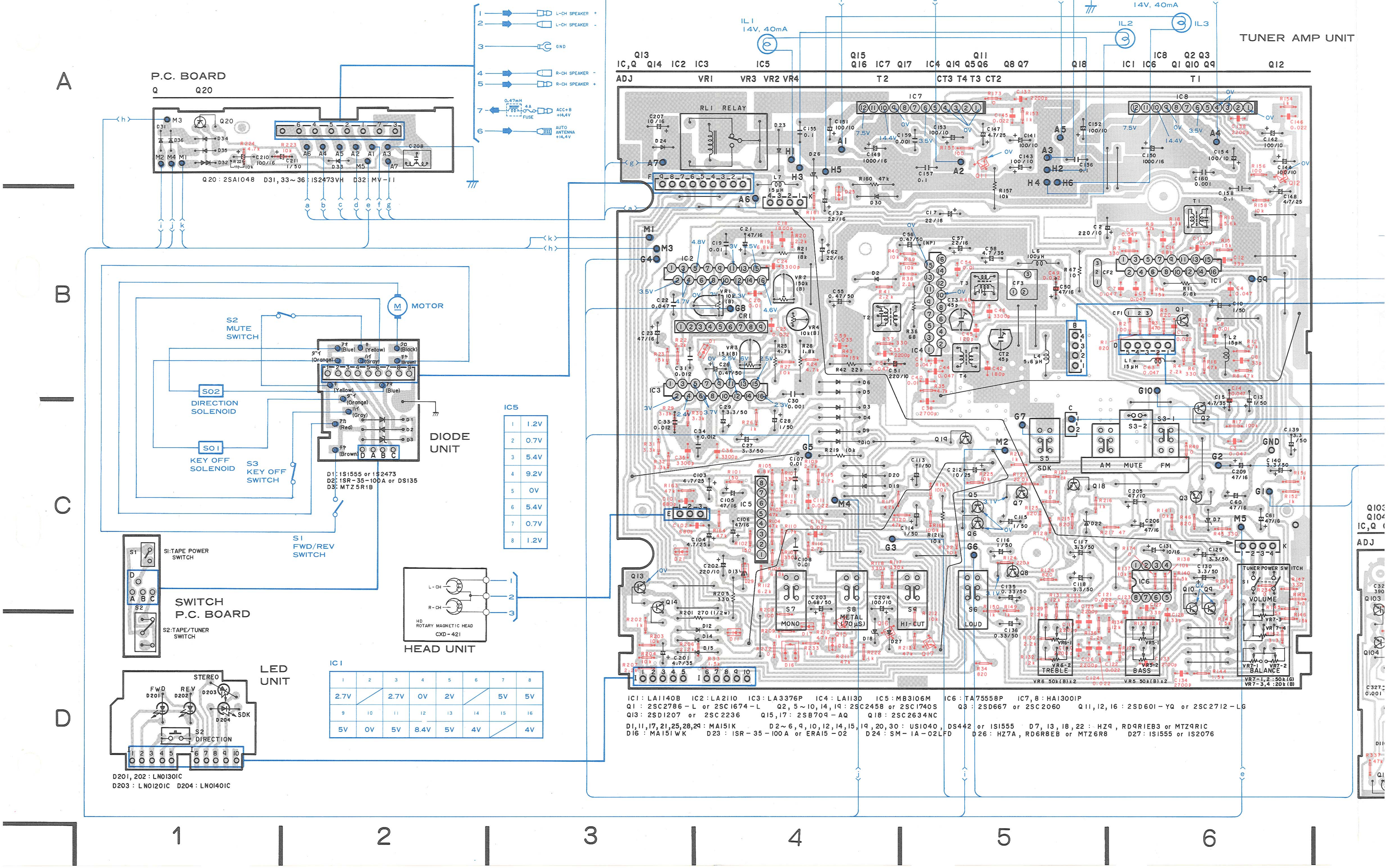
◉ MISCELLANEOUS

S1 : FWD/REV SWITCH ··········· [✓ FWD] — REV
S2 : MUTE SWITCH ··········· [✓ ON] — OFF
S3 : KEY OFF SWITCH ··········· [✓ ON] — OFF

◉ The underlined indicates the switch position.


4
5
6
7
8
9
A
B
C
D
IC 2 : LA2110
IC2-1
IC3 : LA3376P
(MPX Decoder)
CR1 CWW-107
HIGH PASS FILTER
LOW PASS FILTER
CCP-245
IC2-2
Noise Suppressor
IC 3
VR2 : CCP-252
VR3 : CCP-246
VR4 : CCP-349
Q2 : 2SC2458 or 2SC1740S
S7 MONO SWITCH CSG-207
AUTO
MONO
TO STEREO IND.
S5 SDK SWITCH CSG-207
SDK IND
SDK UNIT
Q101 : 2SC2458 or 2SC1740S
IC 10 : SO280
IC12 : S551
Q109, 102 : 2SC2458 or 2SC1740S
SK Decoder
IC 10
57kHz PLL
IC 12
DK Decoder
VR101 : CCP-243
Q105 : 2SK30A-O
Q106 : 2SA1048
D102, 103, 107 : IS2473VH or IS2076VH
D104, 105 : IS2473VH or IS2076VH
D106 IS2473VH or IS2076VH
Q112 : 2SD601-YQ or 2SC2712-LG
Q103,104,107,108,110,111 : 2SC2458 or 2SC1740S
D108,109 : IS2473VH or IS2076VH
IC 11 : TA75558P
IC11-1 BPF
IC11-2 Comparator
D110,111 : US1040, IS2076 or DS442
←AF OUT
MUTE IN←
SDK ON/OFF
SK IND
TAPE +B→
←MUTE OUT
Q5~8 : 2SC2458 or 2SC1740S
IC 6 : TA75558P
IC6-1
IC6-2
Q9,10 : 2SC2458 or 2SC1740S
VR7-1,2 BALANCE CCS-400
S6 LOUDNESS SWITCH CSG-207
VR7-3,4 VOLUME CCS-400
VR 6 : TREBLE CCS-401
VR 5 : BASS CCS-401
Flat Amp
Tone Control
Mute
D3~6,9,10 : US1040, DS442 or IS1555
IC 7
IC 8
IC 7,8 : HA13001P (Power Amp)
Q11,12 : 2SD601-YQ or 2SC2712-LG
D30 : US1040, DS442 or IS1555
Q18 2SC2634NC
L-CH SPEAKER +
L-CH SPEAKER −
GND
R-CH SPEAKER −
R-CH SPEAKER +
S3 BAND SELECTOR SWITCH CSG-246
Q3 : 2SD667 or 2SC2060
Q17 : 2SB709-AQ
Q16 : 2SD601-YQ or 2SC2712-LG
Q15 : 2SB709-AQ
D22 : HZ9, RD9RIEB3 or MTZ9RIC
D26 : HZ7A, RD6R8EB or MTZ6R8
D27 : IS1555 or IS2076
D18 HZ9, RD9RIEB3 or MTZ9RIC
D16 : MA151WK
D7 : HZ9, RD9RIEB3 or MTZ9RIC
D19, 20 : US1040, DS442 or IS1555
Mute Circuit
D14, 15 : US1040, DS442 or IS1555
Q14 : 2SC2458 or 2SC1740S
D12 : US1040, DS442 or IS1555
Q13 : 2SD1207 or 2SC2236
Solenoid Driver
RL1 RELAY CSR-042
D24 : SM-1A-02LFD
D23 : ISR-35-100A or ERA15-02
L7 15μH
S1 TUNER POWER SWITCH
Q19 : 2SC2458 or 2SC1740S
D31, 33~36 : IS2473VH
C208 CCG-061
0.47mH
4A FUSE
ACC +B +14.4V
AUTO ANTENNA +B +14.4V
Q20 : 2SA1048
Mute circuit
P.C. BOARD
DIODE UNIT
D1 : IS1555 or IS2473
D2 : ISR-35-100A or DS135
D3 : MTZ5R1B
SWITCH P.C.BOARD
S2 TAPE/TUNER SWITCH HSK-126
S1 TAPE POWER SWITCH CSN-094
TAPE
TUNER
IL 1 CEL-146
IL 2 CEL-160
IL 3 CEL-146
IL1~IL3 14V, 40mA
S2 DIRECTION SWITCH CSG-212
D202 LN01301C
D203 LN01201C
D204 LN01401C
REV
STEREO
SDK
BLACK
RED
GRAY
ORANGE
BROWN
BLUE
YELLOW
MOTOR CXM-115
S3 KEY OFF SWITCH CSN-090
SO1 KEY OFF SOLENOID CXP-043
S1 FWD/REV SWITCH CSN-094
SO2 DIRECTION SOLENOID CXP-044
S2 MUTE SWITCH CSN-084

13. CONNECTION DIAGRAM (KPH-4800SDK/WG)


1
2
3
4
5
6
A
B
C
D
P.C. BOARD
Q Q20
M3
Q20
D31
D36
D34
D35
D32
M2 M4 M1
R224 4.7k
R223 10k
R226 10k
C210 100/16
C211 1/50
C208
A6 A4 A5 A2 A1 A3
D33 M5 A7
Q20 : 2SA1048 D31, 33～36 : IS2473VH D32 : MV-11
L-CH SPEAKER +
L-CH SPEAKER -
GND
R-CH SPEAKER -
R-CH SPEAKER +
0.47mH 4A FUSE
ACC+B +14.4V
AUTO ANTENNA +14.4V
MOTOR
S2 MUTE SWITCH
S02 DIRECTION SOLENOID
S01 KEY OFF SOLENOID
S3 KEY OFF SWITCH
S1 FWD/REV SWITCH
(Blue) (Yellow) (Black) (Orange) (Gray) (Brown) (Red)
DIODE UNIT
D1 : 1S1555 or 1S2473
D2 : 1SR-35-100A or DS135
D3 : MTZ5R1B
S1:TAPE POWER SWITCH
S2:TAPE/TUNER SWITCH
SWITCH P.C. BOARD
HD ROTARY MAGNETIC HEAD
CXD-421
L-CH
R-CH
HEAD UNIT
LED UNIT
STEREO
FWD D201
REV D202
D203
D204
SDK
S2 DIRECTION
D201, 202 : LN01301C
D203 : LN01201C D204 : LN01401C
IL1 14V, 40mA
IL2, IL3 14V, 40mA
IL2
IL3
TUNER AMP UNIT
IC,Q ADJ
Q13 Q14 IC2 IC3 VR1 IC5 VR3 VR2 VR4
Q15 Q16 IC7 Q17 T2
IC4 Q19 Q5 Q6 Q11 CT3 T4 T3 CT2
Q8 Q7
Q18
IC1 IC6 IC8 Q1 Q2 Q3 Q10 Q9 T1
Q12
RL1 RELAY
IC7
IC8
IC2
IC3
IC4
IC1
IC5
IC6
CF1
CF2
CF3
CR1
T1
T2
T3
T4
L1 L2 L4 L6 L7
CT2 CT3
VR1 VR2 VR3 VR4
S3-1 S3-2
AM MUTE FM
GND
S5 SDK
S7 MONO
S8 METAL (70μS)
S9 HI-CUT
S6 LOUD
TREBLE VR6 50k(B)x2
BASS VR5 50k(B)x2
TUNER POWER SWITCH
VOLUME
BALANCE
VR7-1, 2 : 50k(G)
VR7-3, 4 : 20k(B)
Q103
Q104
IC,Q ADJ

IC5

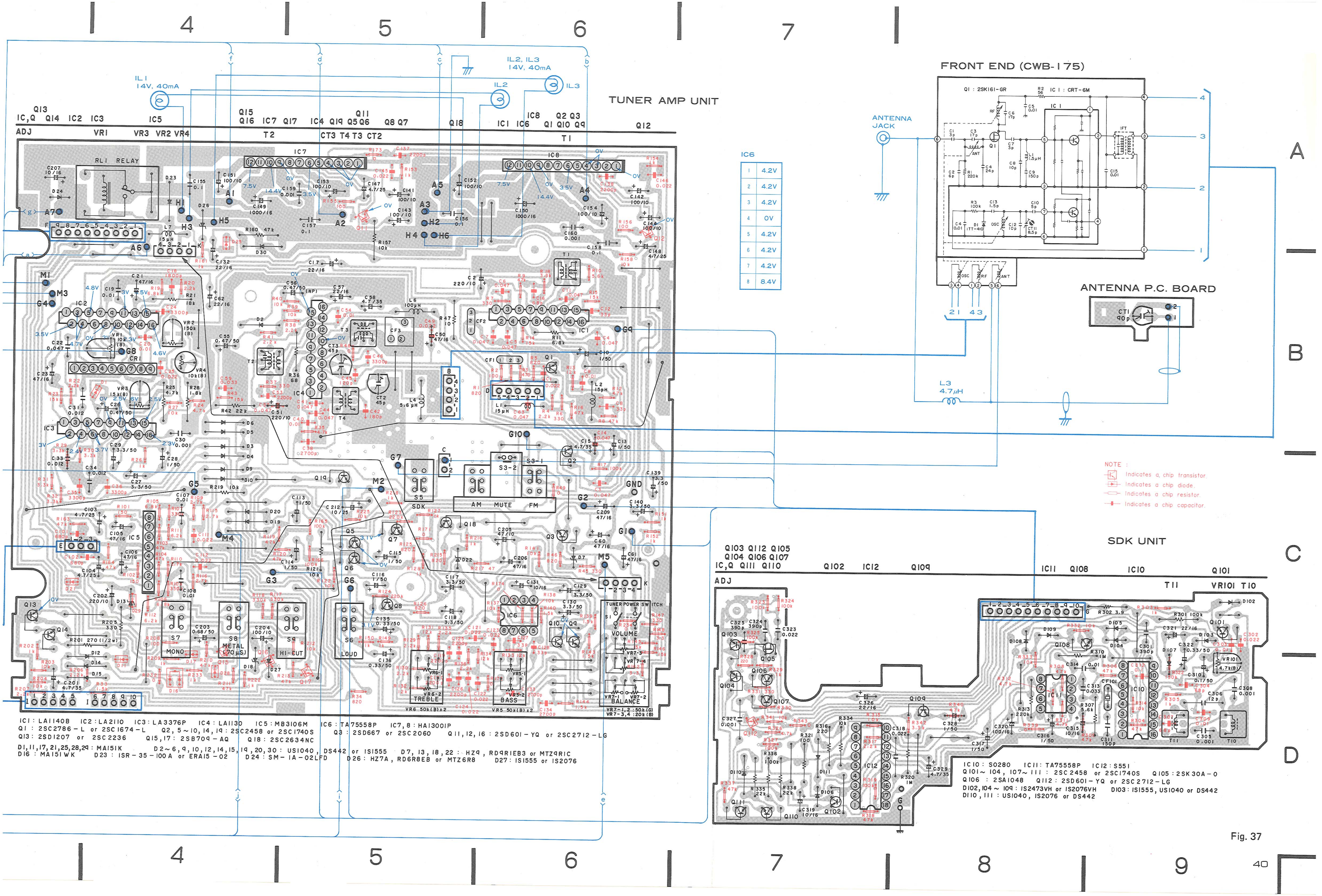
1	1.2V
2	0.7V
3	5.4V
4	9.2V
5	0V
6	5.4V
7	0.7V
8	1.2V

IC1

1	2	3	4	5	6	7	8
2.7V		2.7V	0V	2V		5V	5V
9	10	11	12	13	14	15	16
5V	0V	5V	8.4V	5V	4V		4V

IC1 : LA1140B IC2 : LA2110 IC3 : LA3376P IC4 : LA1130 IC5 : MB3106M IC6 : TA75558P IC7, 8 : HA13001P
Q1 : 2SC2786-L or 2SC1674-L Q2, 5～10, 14, 19 : 2SC2458 or 2SC1740S Q3 : 2SD667 or 2SC2060 Q11, 12, 16 : 2SD601-YQ or 2SC2712-LG
Q13 : 2SD1207 or 2SC2236 Q15, 17 : 2SB709-AQ Q18 : 2SC2634NC

D1, 11, 17, 21, 25, 28, 29 : MA151K D2～6, 9, 10, 12, 14, 15, 19, 20, 30 : US1040, DS442 or 1S1555 D7, 13, 18, 22 : HZ9, RD9R1EB3 or MTZ9R1C
D16 : MA151WK D23 : ISR-35-100A or ERA15-02 D24 : SM-1A-02LFD D26 : HZ7A, RD6R8EB or MTZ6R8 D27 : 1S1555 or 1S2076


4
5
6
7
8
9
A
B
C
D
TUNER AMP UNIT
IL1 14V, 40mA
IL2, IL3 14V, 40mA
IL2
IL3
RL1 RELAY
FRONT END (CWB-175)
Q1 : 2SK161-GR
IC1 : CRT-6M
ANTENNA JACK
ANTENNA P.C. BOARD
CT1 40p
L3 4.7μH
SDK UNIT
S5 SDK
AM MUTE FM
S7 MONO
S8 METAL (70μS)
S9 HI-CUT
S6 LOUD
TUNER POWER SWITCH
VOLUME
TREBLE
BASS
BALANCE
VR6 50k(B)x2
VR5 50k(B)x2
VR7-1,2 :50k(G)
VR7-3,4 :20k(B)
GND

IC6

1	4.2V
2	4.2V
3	4.2V
4	0V
5	4.2V
6	4.2V
7	4.2V
8	8.4V

NOTE :
- Indicates a chip transistor.
- Indicates a chip diode.
- Indicates a chip resistor.
- Indicates a chip capacitor.

IC1 : LA1140B IC2 : LA2110 IC3 : LA3376P IC4 : LA1130 IC5 : MB3106M IC6 : TA75558P IC7, 8 : HA13001P
Q1 : 2SC2786-L or 2SC1674-L Q2, 5~10, 14, 19 : 2SC2458 or 2SC1740S Q3 : 2SD667 or 2SC2060 Q11, 12, 16 : 2SD601-YQ or 2SC2712-LG
Q13 : 2SD1207 or 2SC2236 Q15, 17 : 2SB709-AQ Q18 : 2SC2634NC

D1, 11, 17, 21, 25, 28, 29 : MA151K D2~6, 9, 10, 12, 14, 15, 19, 20, 30 : US1040, DS442 or 1S1555 D7, 13, 18, 22 : HZ9, RD9R1EB3 or MTZ9R1C
D16 : MA151WK D23 : 1SR-35-100A or ERA15-02 D24 : SM-1A-02LFD D26 : HZ7A, RD6R8EB or MTZ6R8 D27 : 1S1555 or 1S2076

IC10 : S0280 IC11 : TA75558P IC12 : S551
Q101~104, 107~111 : 2SC2458 or 2SC1740S Q105 : 2SK30A-0
Q106 : 2SA1048 Q112 : 2SD601-YQ or 2SC2712-LG
D102, 104~109 : 1S2473VH or 1S2076VH D103 : 1S1555, US1040 or DS442
D110, 111 : US1040, 1S2076 or DS442

Fig. 37

14. CABINET EXPLODED VIEW

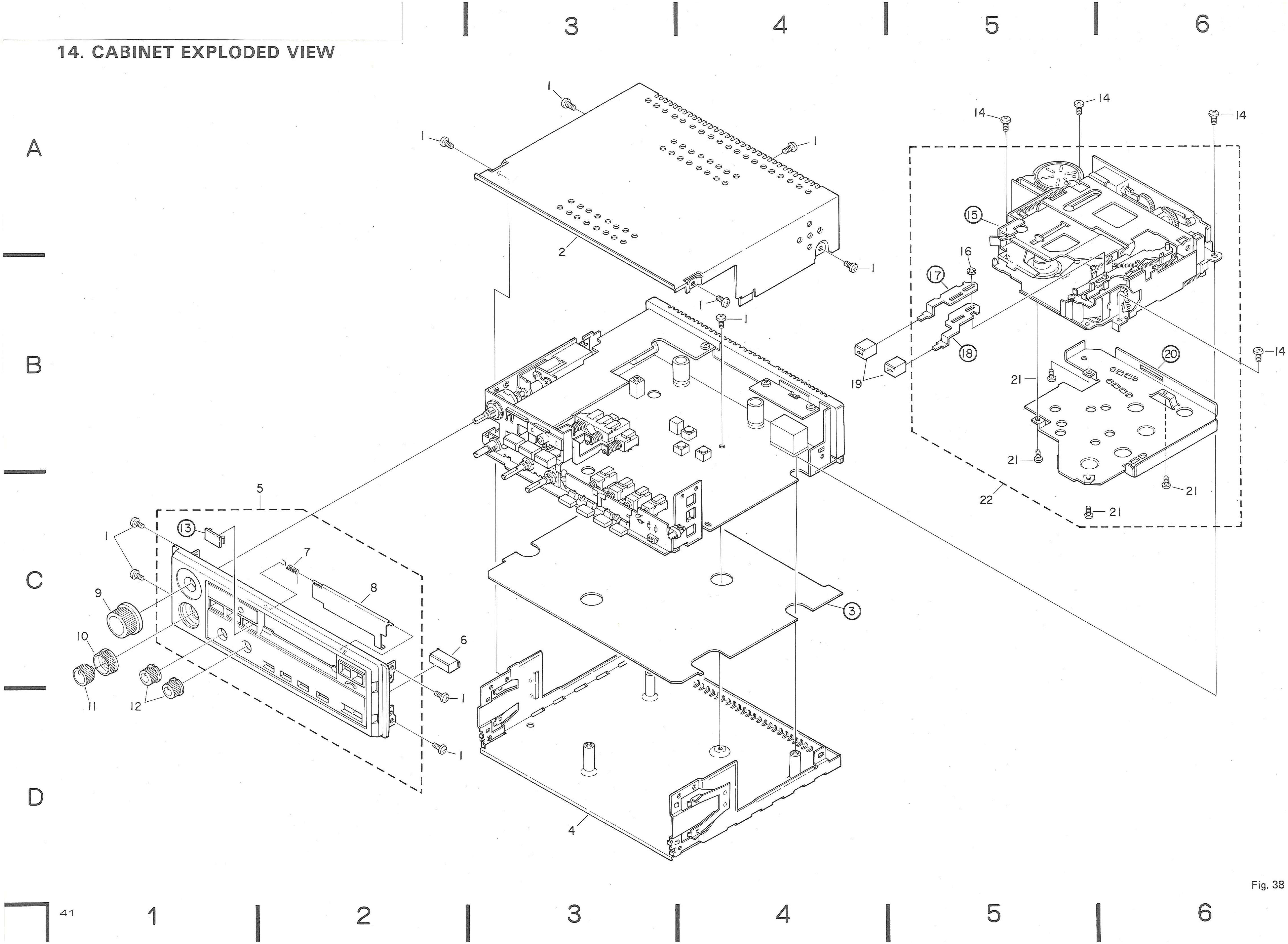

3
4
5
6
A
B
C
D
1
2
3
4
5
6
1
1
1
1
1
1
1
2
14
14
14
14
15
16
17
18
19
20
21
21
21
21
22
5
13
1
7
8
9
10
11
12
6
1
1
3
4

Fig. 38

NOTE:

- *For your parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.*
  ★ ★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*

● Parts List

Mark	No.	Part No.	Description
	1.	BMZ30P050FMC	Screw
	2.	CNB-860	Case
	3.		Insulator
	4.	CXD-348	Chassis Unit
	5.	CXD-484	Grille Assy (KPH-4800/WE,ES)
		CXD-485	Grille Assy (KPH-4830/EW)
		CXD-486	Grille Assy (KPH-4800SDK/WG)
★	6.	CAC-907	Button (DIRECTION)
	7.	CBH-875	Spring
	8.	CAT-211	Door
★	9.	CAA-573	Knob (TUNING)
★	10.	CAA-575	Knob (BALANCE)
★	11.	CAA-574	Knob (VOLUME/TUNER POWER SWITCH)
★	12.	CAA-597	Knob (BASS, TREBLE)
	13.		Cap (KPH-4800/EW,ES)
	14.	BMZ26P050FMC	Screw
	15.		Cassette Mechanism Unit
	16.	YE20FUC	Washer
	17.		Lever
	18.		Lever
★	19.	CAC-914	Button (FF, REW)
	20.		Cover
	21.	BMZ26P030FMC	Screw
	22.	CXK-700	Cassette Mechanism Assy (KPH-4800/EW, ES, KPH-4830/EW)
		CXK-800	Cassette Mechanism Assy (KPH-4800SDK/WG)

15. CHASSIS EXPLODED VIEW

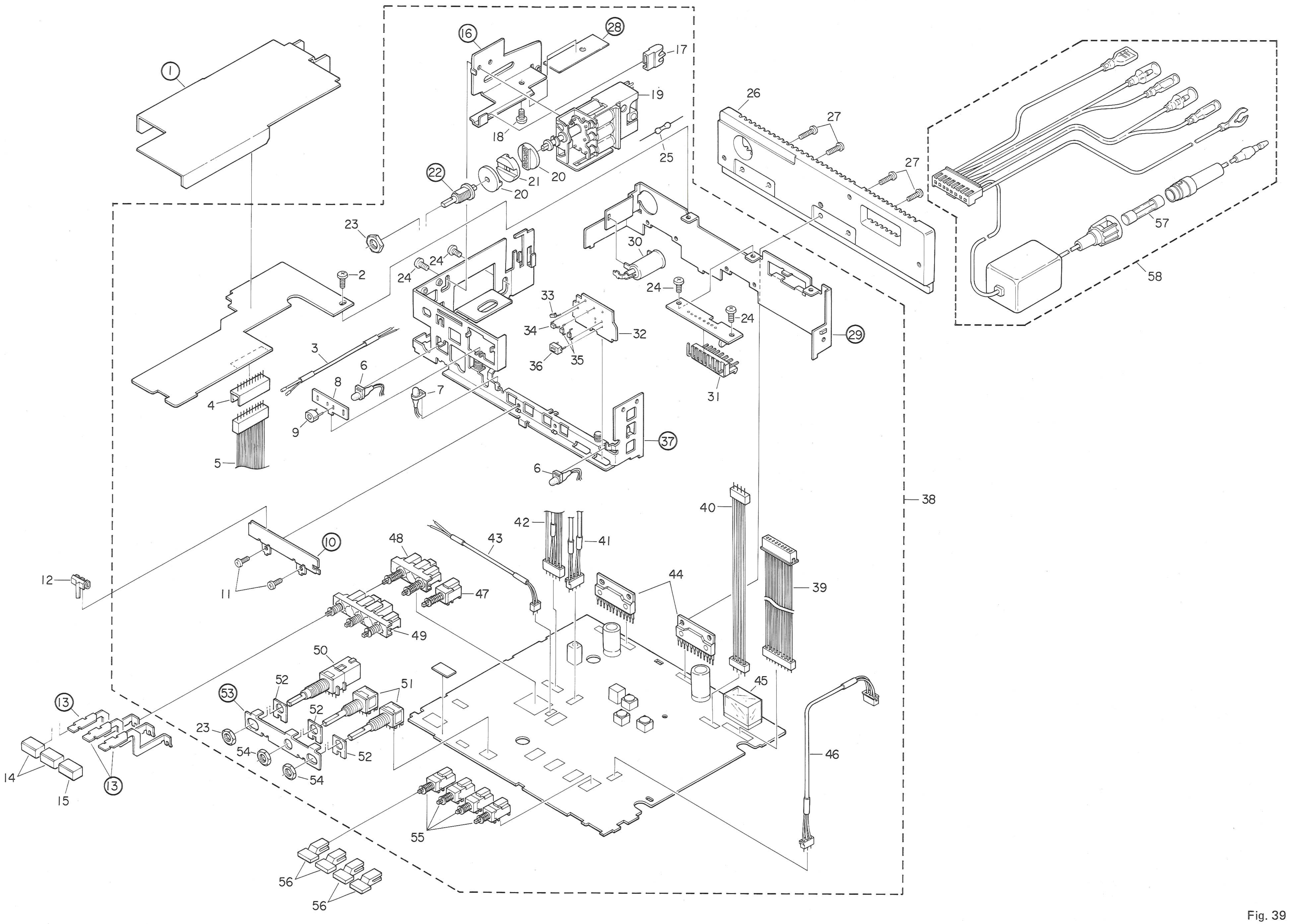


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Fig. 39

NOTE:

- *For your parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.*
  ★ ★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*

● Parts List

Mark	No.	Part No.	Description
	1.		Insulator (KPH-4800SDK/WG)
	2.	BMZ30P050FMC	Screw (KPH-4800SDK/WG)
	3.	CDK-160	Connector (2P)
	4.	CKS-275	Plug (10P) (KPH-4800SDK/WG)
	5.	CDF-591	Connector (10p) (KPH-4800SDK/WG)
★ ★	6.	CEL-146	Lamp,14V,40mA
★ ★	7.	CEL-160	Lamp, 14V, 40mA
	8.	CNL-708	P. C. Board
	9.	CCG-090	Antenna Trimmer, 90pF
	10.		Holder
	11.	BMZ26P050FMC	Screw
	12.	CAF-071	Pointer
	13.		Lever
★	14.	CAC-908	Button (FM, MW)
★	15.	CAC-908	Button (LW) (KPH-4830/EW)
★		CAC-909	Button (SDK) (KPH-4800SDK/WG)
	16.		Holder
	17.	CNW-331	Guide
	18.	BMZ30P030FMC	Screw
	19.	CWB-153	Front End (KPH-4800/EW,ES, (KPH-4830/EW)
		CWB-175	Front End (KPH-4800SDK/WG)
	20.	CNW-100	Coupler (A)
	21.	CNW-101	Coupler (B)
	22.		Shaft
	23.	CBA-067	Nut
	24.	BMZ30P050FMC	Screw
	25.	CTF-161	Ferri-Inductor, 4.7µH
	26.	CNR-221	Heat Sint
	27.	BMZ26P080FMC	Screw
	28.		Insulator
	29.		Holder
	30.	CKX-006	Antenna Jack
	31.	CKS-465	Plug (8P)
	32.	CNL-732	P.C. Board
★	33.	LN01201C	LED (STEREO)
★	34.	LN01401C	LED (SDK) (KPH-4800SDK/WG)
★	35.	LN01301C	LED (FWD, REV)
★ ★	36.	CSG-212	Switch (DIRECTION)
	37.		Holder Unit
	38.	CWM-273	Tuner/Amp Unit (KPH-4800/EW,ES)
		CWM-274	Tuner/AmP Unit (KPH-4830/EW)
		CWM-275	Tuner/Amp Unit (KPH-4800SDK/WG)
	39.	CDK-083	Connector (9P)
	40.	CDF-976	Connector (3P)
	41.	CDK-084	Connector (4P)
	42.	CDF-631	Connector (5P)
	43.	CDK-085	Connector (2P)
★ ★	44.	HA13001P	IC
	45.	CSR-042	Relay
	46.	CDF-975	Connector (3P)
★ ★	47.	CSG-207	Switch (SDK) (KPH-4800SDK/WG)
★ ★	48.	CSG-246	Switch (BAND SELECTOR) (KPH-4800/EW, KPH-4800SDK/WG)
★ ★	49.	CSG-245	Switch (BAND SELECTOR) (KPH-4830/EW)
★ ★	50.	CCS-400	Volume/Switch (VOLUME, BALANCE, TUNER POWER)
★ ★	51.	CCS-401	Volume (BASS, TREBLE)
	52.	CBE-116	Spacer
	53.		Holder
	54.	CBA-066	Nut
★ ★	55.	CSG-207	Switch (LOUDNESS,MONO, METAL (70µs), HIGH CUT)
★	56.	CAC-913	Button (LOUDNESS, MONO, METAL (70µs), HIGH CUT)
	57.		Fuse, 4A
	58.	CDK-081	Cord Assy

16. ELECTRICAL PARTS LIST

NOTE:
When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω 56 × 10^1 561 . . . . RD1/4PS $\boxed{5}\boxed{6}\boxed{1}$ J
47kΩ 47 × 10^3 473 . . . . RD1/4PS $\boxed{4}\boxed{7}\boxed{3}$ J
0.5Ω 0R5 . . . . RN2H $\boxed{0}\boxed{R}\boxed{5}$ K
1Ω 010 . . . . RS1P $\boxed{0}\boxed{1}\boxed{0}$ K

Ex. 2 When there are 3 effeictive digits (such as in high precision metal film resistors).

5.62kΩ 562 × 10^1 . . . . RN1/4SR $\boxed{5}\boxed{6}\boxed{2}\boxed{1}$ F

- *For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*

Tuner Amp Unit (CWM-273) (KPH-4800/EW,ES)

Caution:
The parts of the Tuner Amp Unit and P.C. Board are recorded together.

MISCELLANEOUS

Mark	Symbol & Description	Part No.
★★	IC1	LA1140B
★★	IC2	LA2110
★★	IC3	LA3376P
★★	IC4	LA1130
★★	IC5	MB3106M
★★	IC6	TA75558P
★★	IC7,IC8	HA13001P
★★	Q1	2SC2786-L or 2SC1674-L
★★	Q2,Q5–Q10,Q14	2SC2458 or 2SC1740S
★★	Q3	2SD667 or 2SC2060
	Q4	VACANT
★★	Q11,Q12,Q16 Chip Transistor	2SD601-YQ or 2SD601-YR or 2SD601-YS or 2SC2712-LG or 2SC2712-LL or 2SC2712-LY
★★	Q13	2SD1207 or 2SC2236
★★	Q15,Q17 Chip Transistor	2SB709-AQ or 2SB709-AR or 2SB709-AS
★★	Q18	2SC2634NC
★	D1,D11,D17,D21,D25,D28,D29 Chip diode	MA151K
★	D2–D6,D9,D10,D12,D14,D15, D19,D20,D30	US1040 or DS442 or 1S1555
★	D7,D13,D18,D22	HZ9 or RD9R1EB3 or MTZ9R1C
	D8,D27	VACANT
★	D16 Chip Diode	MA151WK
★	D23	1SR-35-100A or ERA15-02
★	D24	SM-1A-02LFD
★	D26	HZ7A or RD6R8EB or MTZ6R8
	L1,L2 Ferri-Inductor, 15μH	CTF-156
	L3,L5	VACANT
	L4 Ferri-Inductor, 5.6μH	CTF-213
	L6 Ferri-Inductor, 100μH	CTF-157
	L7 Ferri-Inductor, 15μH	CTF-078
	T1 Coil	CTC-172
	T2 Coil	CTE-149
	T3 Coil	CTE-150
	T4 Coil	CTB-146
	CF1,CF2 Ceramic Filter	CTF-152 or CTF-217
	CF3 Filter	CTF-240 or CTF-100
	CR1	CWW-107
	CT2,CT3 Trimmer,	CCG-087
★★	VR1 Semi-fixed, 10kΩ(B)	CCP-245
★★	VR2 Semi-fixed, 150kΩ(B)	CCP-252
★★	VR3 Semi-fixed, 15kΩ(B)	CCP-246
★★	VR4 Semi-fixed, 10kΩ(B)	CCP-349
★★	VR5,VR6 Volume, 50kΩ(B) (BASS, TREBLE)	CCS-401
★★	VR7 Volume/Switch Volume, 20kΩ (B), 50kΩ (G) (VOLUME, BALANCE, TUNER POWER)	CCS-400
★★	S3 Switch (BAND SELECTOR)	CSG-246
★★	S6–S9 Switch (LOUDNESS, MONO, METAL (70μs), HIGH CUT)	CSG-207
	RL1 Relay	CSR-042

RESISTORS

Mark	Symbol & Description	Part No.
	R1–R10,R12–R20,R22–R24, R26,R27,R29–R33,R35,R37–R41, R43,R45,R46,R48,R49,R101–R112, R115–R120,R122–R141,R143, R144,R148–R156,R158,R161, R163–R166,R171–R174,R202–R204,R206–R213,R215–R218, R222,R231–R234 Chip Resistor	RS1/8S□□□J
	R11,R21,R25,R28,R36,R42, R47, R121,R157,R160,R205	RD1/4PM□□□J
	R201	RD1/2PS□□□JL

CAPACITORS

Mark	Symbol & Description	Part No.
	C1,C25,C49 Chip Capacitor	CKSYB223K25
	C2,C51	CEA221M10L2
	C3–C7,C11,C14,C41,C44,C52, C63 Chip Capacitor	CKSYF473Z50
	C8,C12 Chip Capacitor	CCSSL330J50
	C9,C20,C40,C54 Chip Capacitor	CKSYB103K50
	C10	CEA010M50L2
	C13	CEA010M50LS2
	C15,C58	CEA4R7M35LS
	C16 Chip Capacitor	CCSCH680J50
	C17,C62	CEA220M16LS
	C18 Chip Capacitor	CKSYB182K50
	C19	CQMA103J50L
	C21,C50,C60,C61	CEA470M16LS
	C22	CQMA473J50L
	C23	CEA470M16LS
	C24,C35,C36 Chip Capacitor	CKSYB332K50
	C26,C55	CEAR47M50LS2
	C27,C29	CEA3R3M50LS
	C28	CSZA010M25
	C30	CQSAH102J50
	C31,C33,C34	CQMA123J50L
	C38 Chip Capacitor	CCSSL272J50
	C42 Chip Capacitor	CCSTH181J50
	C45 Chip Capacitor	CCSPH121J50
	C46 Chip Capacitor	CCSSL332J50
	C53 Chip Capacitor	CKSYB222K50
	C56	CCH-108
	C57	CEA220M16LS
	C59 Chip Capacitor	CKSYF333Z50
	C101,C102 Chip Capacitor	CKSYB681K50
	C103,C104	CEANL4R7M25L
	C105,C106,C209	CEA470M16LS
	C107,C108	CQMA103J50L
	C111,C112,C121–C124,C145, C146 Chip Capacitor	CKSYB223K25
	C113–C116	CEA010M50LS2
	C117,C118,C129,C130,C139, C140	CEA3R3M50LS
	C119,C120,C125,C126,C137, C138 Chip Capacitor	CKSYB222K50
	C127,C128 Chip Capacitor	CCSSL330J50
	C131	CEA100M16L2
	C132	CEA220M16LS
	C133,C134 Chip Capacitor	CKSYB272J50
	C135,C136	CEAR33M50L2
	C141-C144,C151-C154	CEA101M10L2
	C147,C148	CEA4R7M25L2
	C149,C150	CEA102M16L2
	C155–C158	CQMA104J50L
	C159,C160	CQMA102J50L
	C201	CEA4R7M35LS
	C202	CEA221M10L2
	C203	CEAR68M50LS2
	C204	CEA101M10L2
	C205,C206	CEA470M16L2
	C207	CEA100M16L2
	C208	CCG-081

Tunrer Amp Unit (CWM-274) (KPH-4830/EW)

Caution:
The parts of the Tuner Amp Unit and P.C. Board are recorded together.

MISCELLANEOUS

Mark	Symbol & Description	Part No.
★★	IC1	LA1140B
★★	IC2	LA2110
★★	IC3	LA3376P
★★	IC4	LA1130
★★	IC5	MB3106M
★★	IC6	TA75558P
★★	IC7,IC8	HA13001P
★★	Q1	2SC2786-L or 2SC1674-L
★★	Q2,Q5–Q10,Q14	2SC2458 or 2SC1740S
★★	Q3	2SD667 or 2SC2060
	Q4	VACANT
★★	Q11,Q12,Q16, Chip Transistor	2SD601-YQ or 2SD601-YR or 2SD601-YS or 2SC2712-LG or 2SC2712-LL or 2SC2712-LY
★★	Q13	2SD1207 or 2SC2236
★★	Q15,Q17 Chip Transistor	2SB709-AQ or 2SB709-AR or 2SB709-AS
★★	Q18	2SC2634NC
★	D1,D11,D17,D21,D25,D28, D29 Chip Diode	MA151K
★	D2–D6,D9,D10,D12,D14,D15, D19,D20,D30	US1040 or DS442 or 1S1555
★	D7,D13,D18,D22	HZ9 or RD9R1EB3 or MTZ9R1C
	D8,D27	VACANT
★	D16 Chip Diode	MA151WK
★	D23	1SR-35-100A or ERA15-02
★	D24	SM-1A-02LFD
★	D26	HZ7A or RD6R8EB or MTZ6R8
	L1,L2 Ferri-Inductor, 15μH	CTF-156
	L3	VACANT
	L4 Ferri-Inductor, 5.6μH	CTF-213
	L5,L6 Ferri-Inductor, 100μH	CTF-157
	L7 Ferri-Inductor, 15μH	CTF-078
	T1 Coil	CTC-172
	T2 Coil	CTE-149
	T3 Coil	CTE-150
	T4 Coil	CTB-146
	T5 Coil	CTB-145
	T6 Coil	CTB-148
	T7 Coil	CTB-147
	CF1,CF2 Ceramic Filter	CTF-152 or CTF-217
	CF3 Filter	CTF-240 or CTF-100
	CR1	CWW-107
	CT2,CT3 Trimmer, 45pF	CCG-087
★★	VR1 Semi-fixed, 10kΩ(B)	CCP-245
★★	VR2 Semi-fixed, 150kΩ(B)	CCP-252
★★	VR3 Semi-fixed, 15kΩ(B)	CCP-246
★★	VR4 Semi-fixed, 10kΩ(B)	CCP-349
★★	VR5,VR6 Volume, 50kΩ(B) (TREBLE, BASS)	CCS-401
★★	VR7 Volume/Switch Volume, 20kΩ(B), 50kΩ(G) (VOLUME, BALANCE, TUNER POWER)	CCS-400
★★	S3 Switch (BAND SELECTOR)	CSG-245
★★	S6–S9 Switch (LOUDNESS, MONO, METAL (70μS), HIGH CUT)	CSG-207
	RL1 Relay	CSR-042

RESISTORS

Mark	Symbol & Description	Part No.
	R1–R10,R12–R20,R22–R24, R26,R27,R29–R33,R35,R37–R46,R48,R49,R101-R112,R115–R120,R122–R141,R143,R144, R148–R156,R158,R161, R163–R166,R171–R174,R202–R204,R206–R213,R215–R218, R222,R231–R234 Chip Resistor	RS1/8S□□□J
	R11,R21,R25,R28,R36,R42, R47,R121,R157,R160,R205	RD1/4PM□□□J
	R201	RD1/2PS□□□JL

CAPACITORS

Mark	Symbol & Description	Part No.
	C1,C25,C49 Chip Capacitor	CKSYB223K25
	C2,C51	CEA221M10L2
	C3–C7,C11,C14,C41,C44, C52,C63 Chip Capacitor	CKSYF473Z50
	C8,C12 Chip Capacitor	CCSSL330J50
	C9,C20,C40,C54 Chip Capacitor	CKSYB103K50
	C10	CEA010M50L2
	C13	CEA010M50LS2
	C15,C58	CEA4R7M35LS

Mark	Symbol & Description		Part No.
	C16	Chip Capacitor	CCSCH680J50
	C17,C62		CEA220M16LS
	C18	Chip Capacitor	CKSYB182K50
	C19		CQMA103J50L
	C21,C50,C60,C61		CEA470M16LS
	C22		CAMA473J50L
	C23		CEA470M16LS
	C24,C35,C36	Chip Capacitor	CKSYB332K50
	C26,C55		CEAR47M50LS2
	C27,C29		CEA3R3M50LS
	C28		CSZA010M25
	C30		CQSAH102J50
	C31,C33,C34		CQMA123J50L
	C37,C46	Chip Capacitor	CCSSL222J50
	C38	Chip Capacitor	CCSSL272J50
	C39		CKSYB562J50
	C42	Chip Capacitor	CCSTH181J50
	C43		CQSAH132J50
	C45	Chip Capacitor	CCSPH121J50
	C47	Chip Capacitor	CKSYF333Z50
	C53	Chip Capacitor	CKSYB222K50
	C56		CCH-108
	C57		CEA220M16LS
	C59	Chip Capacitor	CKSYF333Z50
	C101,C102	Chip Capacitor	CKSYB681K50
	C103,C104		CEANL4R7M25L
	C105,C106,C209		CEA470M16LS
	C107,C108		CQMA103J50L
	C111,C112,C121–C124,C145, C146	Chip Capacitor	CKSYB223K25
	C113–C116		CEA010M50LS2
	C117,C118,C129,C130,C139, C140		CEA3R3M50LS
	C119,C120,C125,C126,C137, C138	Chip Capacitor	CKSYB222K50
	C127,C128	Chip Capacitor	CCSSL330J50
	C131		CEA100M16L2
	C132		CEA220M16LS
	C133,C134	Chip Capacitor	CKSYB272J50
	C135,C136		CEAR33M50L2
	C141–C144,C151–C154		CEA101M10L2
	C147,C148		CEA4R7M25L2
	C149,C150		CEA102M16L2
	C155–C158		CQMA104J50L
	C159,C160		CQMA102J50L
	C201		CEA4R7M35LS
	C202		CEA221M10L2
	C203		CEAR68M50LS2
	C204		CEA101M10L2
	C205,C206		CEA470M16L2
	C207		CEA100M16L2
	C208		CCG-081

Tuner Amp Unit (CWM-275) (KPH-4800SDK/WG)

Caution:
The parts of the Tuner Amp Unit, P.C. Board and SDK Unit are recorded together.

MISCELLANEOUS

Mark	Symbol & Description		Part No.
★★	IC1		LA1140B
★★	IC2		LA2110
★★	IC3		LA3376P
★★	IC4		LA1130
★★	IC5		MB3106M
★★	IC6,IC11		TA75558P
★★	IC7,IC8		HA13001P
★★	IC9		VACANT
★★	IC10		S0280
★★	IC12		S551
★★	Q1		2SC2786-L or 2SC1674-L
★★	Q2,Q5–Q10,Q14,Q19, Q101–Q104,Q107–Q111		2SC2458 or 2SC1740S
★★	Q3		2SD667 or 2SC2060
	Q4		VACANT
★★	Q11,Q12,Q16,Q112	Chip Transistor	2SD601-YQ or 2SD601-YR or 2SD601-YS or 2SC2712-LG or 2SC2712-LL or 2SC2712-LY
★★	Q13		2SD1207 or 2SC2236
★★	Q15,Q17	Chip Transistor	2SB709-AQ or 2SB709-AR or 2SB709-AS
★★	Q18		2SC2634NC
★★	Q20,Q106		2SA1048
★★	Q105		2SK30A-O
★	D1,D11,D17,D21,D25,D28, D29	Chip Diode	MA151K
★	D2–D6,D9,D10,D12,D14,D15, D19,D20,D30,D103		US1040 or DS442 or 1S1555
★	D7,D13,D18,D22		HZ9 or RD9R1EB3 or MTZ9R1C
	D8		VACANT
★	D16	Chip Diode	MA151WK
★	D23		1SR-35-100A or ERA15-02
★	D24		SM-1A-02LFD
★	D26		HZ7A or RD6R8EB or MTZ6R8
★	D27		1S1555 or 1S2076
★	D31,D33–D36		1S2473VH

Mark	Symbol & Description		Part No.
★	D32		MV-11
★	D102,D104–D109		1S2473VH or 1S2076VH
★	D110,D111		US1040 or 1S2076 or DS442
	L1,L2	Ferri-Inductor, 15μH	CTF-156
	L3,L5		VACANT
	L4	Ferri-Inductor, 5.6μH	CTF-213
	L6	Ferri-Inductor, 100μH	CTF-157
	L7	Ferri-Inductor, 15μH	CTF-078
	T1	Coil	CTC-172
	T2	Coil	CTE-149
	T3	Coil	CTE-150
	T4	Coil	CTB-146
	T10,T11	Coil	CTF-125
	CF1,CF2	Ceramic Filter	CTF-152 or CTF-217
	CF3	Filter	CTF-240 or CTF-100
	CF101	Ceramic Resonator	CTF-109
	CR1		CWW-107
	CT2,CT3	Trimmer, 45pF	CCG-087
★★	VR1	Semi-fixed, 10kΩ(B)	CCP-245
★★	VR2	Semi-fixed, 150kΩ(B)	CCP-252
★★	VR3	Semi-fixed, 15kΩ(B)	CCP-246
★★	VR4	Semi-fixed, 10kΩ(B)	CCP-349
★★	VR5,VR6	Volume, 50kΩ(B) (BASS, TEBLE)	CCS-401
★★	VR7	Volume/Switch Volume, 20kΩ(B), 50kΩ(G) (VOLUME, BALANCE, TUNER POWER)	CCS-400
★★	VR101	Semi-fixed, 4.7kΩ(B)	CCP-243
★★	S3	Switch (BAND SELECTOR)	CSG-246
★★	S5–S9	Switch (SDK,LOUDNESS, MONO, METAL(70μs), HIGH CUT)	CSG-207
	RL1	Relay	CSR-042

RESISTOR

Mark	Symbol & Description		Part No.
	R1–R10,R12–R20,R22–R24,R26, R27,R29–R41,R43,R45,R46,R48, R49,R101–R112,R115–R120, R122–R141,R143–R156,R158, R161–R166,R171–R174,		RS1/8S□□□J
	R202–R204,R206–R213,R215–R218,R222–R225,R232–R234,R303–R306,R308,R309,R311,R312,R314, R315,R317–R319,R322,R323–R333, R337,R339–R343	Chip Resistor	
	R11,R21,R25,R28,R42,R47,R121, R157,R160,R205,R219,R301, R302,R307,R310,R313,R316, R320,R321,R334–R336,R338		RD1/4PM□□□M
	R201		RD1/2PS□□□JL
	R226		RD1/6PS□□□J

CAPACITORS

Mark	Symbol & Description		Part No.
	C1,C25,C49	Chip Capacitor	CKSYB223K25
	C2,C51		CEA221M10L2
	C3–C7,C11,C14,C41,C44,C52, C63	Chip Capacitor	CKSYF473Z50
	C8,C12	Chip Capacitor	CCSSL330J50
	C9,C20,C40,C54	Chip Capacitor	CKSYB103K50
	C10,C13		CEA010M50LS2
	C15,C58		CEA4R7M35LS
	C16	Chip Capacitor	CCSCH680J50
	C17,C62		CEA220M16LS
	C18	Chip Capacitor	CKSYB182K50
	C19		CQMA103J50L
	C21,C50,C60,C61		CEA470M16LS
	C22		CQMA473J50L
	C23		CEA470M16LS
	C24,C35,C36	Chip Capacitor	CKSYB332K50
	C26,C55		CEAR47M50LS2
	C27,C29		CEA3R3M50LS
	C28		CSZA010M25
	C30		CQSAH102J50
	C31,C33,C34		CQMA123J50L
	C38	Chip Capacitor	CCSSL272J50
	C42	Chip Capacitor	CCSTH181J50
	C45	Chip Capacitor	CCSPH121J50
	C46	Chip Capacitor	CCSSL332J50
	C53	Chip Capacitor	CKSYB222K50
	C56		CCH-108
	C57		CEA220M16LS
	C59	Chip Capacitor	CKSYF33Z50

Mark	Symbol & Description		Part No.
	C101,C102	Chip Capacitor	CKSYB681K50
	C103,C104		CEANL4R7M25L
	C105,C106,C209		CEA470M16LS
	C107,C108		CQMA103J50L
	C111,C112,C121–C124,C145,		CKSYB223K25
	C146	Chip Capacitor	
	C113–C116		CEA010M50LS2
	C117,C118,C129,C130,C139,C140		CEA3R3M50LS
	C119,C120,C125,C126,C137,		CKSYB222K50
	C138	Chip Capacitor	
	C127,C128	Chip Capacitor	CCSSL330J50
	C131		CEA100M16L2
	C132		CEA220M16LS
	C133,C134	Chip Capacitor	CKSYB272J50
	C135,C136		CEAR33M50L2
	C141–C144,C151–C154		CEA101M10L2
	C147,C148		CEA4R7M25L2
	C149,C150		CEA102M16L2
	C155–C158		CQMA104J50L
	C159,C160		CQMA102J50L
	C201		CEA4R7M35LS
	C202		CEA221M10L2
	C203		CEAR68M50LS2
	C204		CEA101M10L2
	C205,C206		CEA470M16L2
	C207		CEA100M16L2
	C208		CCG-081
	C210		CEA101M16LL
	C211		CEA010M50L2
	C212		CEA100M25LS
	C301,C324,C325		CCDSL391J50L
	C302	Chip Capacitor	CKSYB223K25
	C303,C309	Chip Capacitor	CKSYB103K50
	C304,C307	Chip Capacitor	CCSCH680J50
	C305,C308		CQSAH102J50
	C306		CCPCH120J50
	C310		CEA0R1M50LS2
	C311		CQSAH151J50
	C312	Chip Capacitor	CKSYF104Z25
	C313		CQMA333J50L
	C314		CQMA103J50L
	C315,C319		CEA100M16L2
	C316,C317,C328		CEA010M50LS2
	C318		CKPYY223N16
	C320		CEA101M16LL
	C321,C326		CEA220M16LS
	C322		CEAR33M50LS2
	C323		CQMA223J50L
	C327		CKPYB102K50
	C329		CEA4R7M35LS

Antenna P.C. Board

Mark	Symbol & Description		Part No.
	CT1	Antenna Trimmer, 90pF	CCG-090

Head Unit

Mark	Symbol & Description		Part No.
	HD	Rotary Magnetic Head	CXD-421

LED Unit

Mark	Symbol & Description		Part No.
★	D201,D202	LED (FWD, REW)	LN01301C
★	D203	LED (STEREO)	LN01201C
★	D204	LED (SDK) (KPH-4800SDK/WG)	LN01401C
★★	S2	Switch (DIRECTION)	CSG-212

Switch P.C. Board

Mark	Symbol & Description		Part No.
★★	S1	Switch (TAPE POWER)	CSN-094
★★	S2	Switch (TAPE/TUNER)	HSK-126

Diode Unit

Mark	Symbol & Description		Part No.
★	D1		1S1555 or 1S2473
★	D2		1SR-35-100A or DS135
★	D3		MTZ5R1B

Miscellaneous Parts List

Mark	Symbol & Description		Part No.
	L3	Ferri-Inductor, 4.7μH	CTF-161
★★	IL1,IL3	Lamp, 14V, 40mA	CEL-146
★★	IL2	Lamp, 14V, 40mA	CEL-160
★★	M	Motor	CXM-113
★	SO1	Solenoid (KEY OFF)	CXP-043
★	SO2	Solenoid (DIRECTION)	CXP-044
★★	S1	Switch (FWD/REV)	CSN-094
★★	S2	Switch (MUTE)	CSN-084
★★	S3	Switch (KEY OFF)	CSN-090
		Front End (KPH-4830/EW, KPH-4800/EW,ES)	CWB-153
		Frong End (KPH-4800SDK/WG)	CWB-175

17. PACKING METHOD

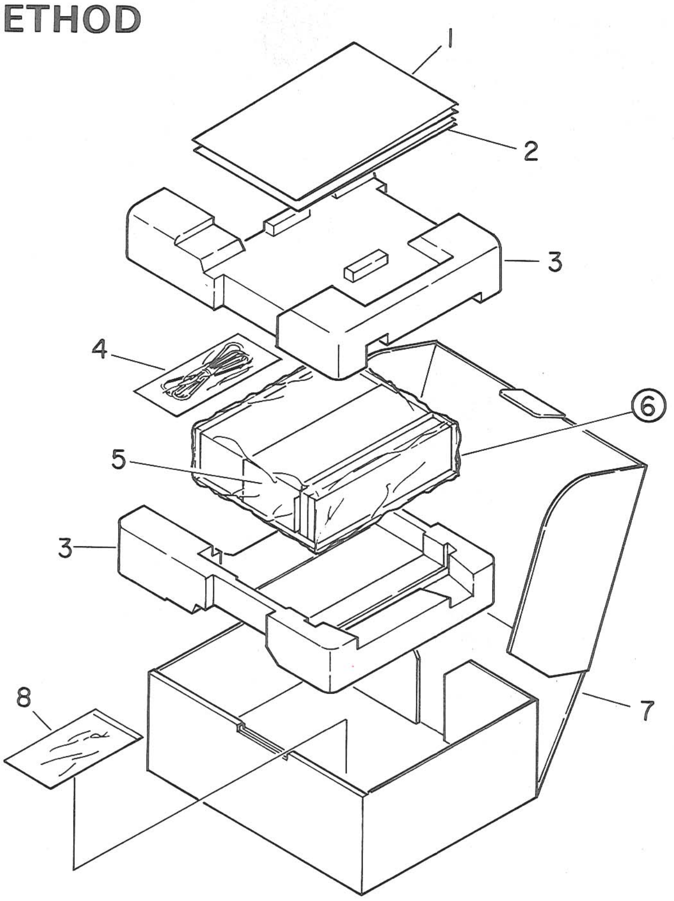

Fig. 40

NOTE:

- *Parts whose parts numbers are omitted are subject to being not supplied.*

- **Parts List**

Mark	No.	Part No.	Description
	1.	CRB-504	Owner's Manual (KPH-4800/ES) (Arabic)
		CRD-515	Owner's Manual (KPH-4800/EW, KPH-4830/EW) (Swedish, Norwegian, Dutch)
		CRD-516	Owner's Manual (KPH-4800SDK/WG) (German, French)
	2.	CRD-514	Owner's Manual (KPH-4800/EW, KPH-4830/EW) (English, French, German, Spanish)
	3.	CHD-870	Styro foam
	4.	CDK-081	Cord Assy
	5.	CNG-505	Holder
	6.		Cover
	7.	CHD-872	Carton (KPH-4800/EW,ES)
		CHD-874	Carton (KPH-4830/EW)
		CHD-876	Carton (KPH-4800SDK/WG)
	8.	CEA-885	Accessory Kit
	8-1.	CDE-437	Cord
	8-2.	CNF-111	Strap
	8-3.	CNF-382	Lever
	8-4.	CNW-642	Holder
	8-5.		Screw Kit
	8-5-1.	CBA-028	Screw for Strap
	8-5-2.	NF40FMC	Nut
	8-5-3.	NF50FMC	Nut
	8-5-4.	PMZ50Y160FMC	Screw
	8-5-5.	WS40FMC	Washer